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THE SMALLER HOUSES OF THE ENGLISH SUBURBS AND PROVINCES.*

Part I.

NOTES ON DESIGN.

THIS first article prefaces a treatment of the subject of the smaller houses of the English suburbs and provinces in four parts, the last of which will be on the important subject of interiors and their decoration, the third will deal with "sanitary science," including the state of the soil as well as the important question of house drainage, and the second will be upon "construction," under the sub-titles of foundation, walls, roofs, etc. The object kept in view will be to exhibit the ideas and methods in common use in the class of houses selected for treatment. We shall hope to illustrate each article with engravings of the works of leading architects, as well as by some plans and elevations and by diagrams of sanitary and constructional points. In the last article especially we shall hope to give some excellent interior work which, though some of it occurs in houses of a more expensive class, still shows what might be done in homes costing up to $20,000, if it were more the practice to decorate well one or more rooms, instead of dissipating the available resources in bringing every room up to a certain standard of average ornamentation.

The gradual growth of the modern rural or semi-rural style of architecture need not detain us, fascinating as is the subject to any architect. It suffices to say that our ideas as to this class of buildings have advanced since the poet thus ridiculed the craze of the city merchant for a house outside London, when describing him as dwelling in "tight-sashed boxes," where he breathed "clouds of dust and called it country air."

All that we would insist upon historically is that the Anglo-classic school should not be thought to have overlooked the problem, for there are numerous English books of villa designs in the rustic Italian manner, and not a few houses were erected in accordance with that fashion. The Italian villa, however, has never been more than the plaything of the rich, for it requires an amount of detail, and refinement in execution,

* An article describing current practice and requirements in Great Britain.

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WATERSIDE—WESTGATE-ON-SEA. Ernest George & Peto, Architects,

HOUSES AT STREATHAM COMMON. Ernest George & Peto, Architects.

which is impossible of attainment in houses of this class. The farm house model came in after the equal failure of the Gothic revival to produce a reasonable house, superseding the rustic Italian, the plaster Elizabethan, and the brick and stone Gothic; its only competitor at present is the square, red brick, box-like mansion of the Georgian period; the latter, however, as now revised, contains elements that it owes to its rivals, which give to it an enlarged scope and greater possibilities. The Bedford Park estate (London) represents the first effort of the new school to combine houses of the ordinary accommodation, but possessing each some picturesqueness of design, into a whole, which should not be too ambitious nor appear to be other than a village of houses of some refinement. London extends itself by absorbing the estates of private persons which, as they are made accessible by railways or otherwise, become what is called ripe for development, and are laid out accordingly for the class of residents who may be expected to occupy the suburb. In such estates the requirements of the picturesque are compromised with the desire to utilize every foot of the site, and the calculated sinuous curves of roads devised to attain both, generally fail to attain the latter; for houses working round a curve to be really effective require a freedom of spacing and a careful consideration in grouping that they generally fail to receive; presenting too often the appearance of having fallen anyhow, on to an irregular road. Where such houses, inhabitated by the same class, who pay each the same rent, are spaced out about equal, it is affectation to make much of any one at the expense of all the rest; but how otherwise is the unrestful effect of alternating or varied designs to be avoided? To walk through a modern estate is often to review a catalogue of designs whose lack of harmony confounds the mind. The best hope of an estate lies in its gradual development, and in each house being designed for an individual; but this is not the commercial view, which urges the rapid completion of the roads and houses for the immediate occupation of the tenants. The existence, however, on the site, of old trees is a great help, and if some houses could have their principal garden in front, and others at the back, there would be opportunities for good effects in the side elevations, which, when the houses are closely spaced, are very imperfectly seen. As designs in a rural style are very dependent on the grouping of the roofs, chimneys and other features, such perspective questions are of paramount importance.

Seaside houses are a much neglected branch of our subject, and we are pleased to illustrate one example from a popular watering place designed by a well-known architect. The chief requirement, however, of such houses on a sea-front appears to be a capacious veranda, and our example does not illustrate that feature. Verandas are so common in American designs that the hesitation of English architecture in their use will seem strange. The average sea-front house, run up by a builder, has a bowed front, girt with a zinc structure on thin iron columns following round its curve; and in spite of the defect of over-darkening the rooms in our climate, such a veranda is regarded as indispensable.

Of all the attempts made to treat the feature, the most successful, as a rule, is an affectation of a Georgian character, carried out in iron like the wood original, and usually painted a dark olive green.

In regard to other points of the design of this class of houses, it should be remembered that the walls are unfavorably affected by the driving rain and sea breezes, and consequently slate and tile hangings are effective both for health and appearance. In some of the older parts of Brighton are some very interesting examples, the houses having segmental bow windows of the full height of the front, formed of sash framing ; the wall space between floor and sill level being apparently of red brick worked to the curve, but in reality is flush tiling jointed to give the effect of the more solid material. The doorways are of wood, with columns, archways and pediment of the common classical de-

sign of the period. A slight crowning cornice of wood completes the facade.

There is about this work a quiet air of comfort and respectability very pleasing after the vulgarities of the bulk of more recent work.

Coming to the general subject, the design of "the smaller houses" in the neighborhood of towns, and especially near London, is limited by building enactments, by the narrowness of the plots and by an average of accommodation which has to be provided. This last condition depresses individual efforts at improvement, as it leads to a search after showy effects designed to catch the chance taste of a possible tenant.

Another cause of poor designs is that often architects accustomed to buildings of a more monumental character do not show to advantage in work on this small scale. Sketching in such countries as Belgium and Germany, and in our villages, where farm houses of gradual growth present effective grouping, combined with simplicity of detail, is the architect's best preparation for such work. The great aim must be *simplicity*, the worst defect, the picturesque for its own sake, that is that crowding of miniature features which, supposed to give scale, has in its result no scale at all, for it produces a toy not worth consideration as architecture.

It is a question whether any design of intentional picturesqueness has ever equaled the accidental grouping that may often be met with in old cities or houses of various epochs; where the facts of history are clearly against any deliberate intention of their builders to produce the result we admire.

What ornamental detail there is requires to be very good, but some of the best of our modern examples have no sculpture or modeling at all, and carving of an architectural character even is reduced to small limits.

This character of simplicity, more especially externally, affected by the best architects at the present time, is scarcely understood by the general public, and good examples are regarded often as ugly even by those who might have been expected to have known better. Recent instances of interest are Mr. Gilbert's studio, in Maida Vale, London, and Mr. Reginald Blomfield's house at Hampstead. The work of Mr. Norman Shaw has always had a masculine character as compared with that of Messrs. Ernest George and Peto, and to eschew the pretty is a good rule for the architect of small houses.

CHIMNEYS.

Two features that must be dealt with are the roof and chimneys, which latter some architects have a trick of exaggerating, so that in some views a house is swallowed up by its stacks. This arises from their defective planning, trouble being avoided by carrying up thin walls of flues one thick and many deep. These in a side view of the house are apt to overlap with other stacks carried up from the eaves, so that from side-and-side sketches the wall of chimneys terminated often at one level, and with one capping.

The tendency a short time ago was to couple two stacks at some distance apart by large flying arches, but at present square plain masses like small towers are much in favor, although they require a management in the flues which is apt at times to be disastrous to their efficiency. The chimney problem arises from the desire to give to every room a fireplace, and possibly also a ventilating flue, systems of heating by pipes being reserved for corridors and halls only; thus the number of flues to be disposed of is formidable.

ROOFS.

As to the roofs, a covering of tiles is practically universal in good work, though green slates are used in some of the square plain houses now coming into favor, in which also hips are preferred to gables. Where a sky line of gables is attempted the intersections of the roofs are a matter of the first importance, the unskillful often making them all meet at the ridge level, producing an unexpected effect in perspective. A dominant roof and a good length of it are found more often in old than new work.

HOUSES AT BEDFORD PARK. R. Norman Shaw, Architect.

Hampstead. OAK TREE HOUSE. Basil Champneys, Architect.

This is a point, however, in which instances can be quoted on both sides in Sussex and Kent. I think the latter will be allowed as the rule, but in Derbyshire and the north examples of ridges at one level must be admitted. One thing, however, is not to be found, and that is those endless *turrets* that are supposed to group with a final touch of the picturesqueness the ramblings of our house builders. Turrets for bells, on churches and stables, if you please, or if Georgian minded, for a capacious belvidere, but spare us the insistance prominence of the unnecessary feature.

HEIGHT OF HOUSES.

As a rule the height of houses is too great, and is specially offensive in the country, because the features of a landscape are not really tall, even the average of trees is not high; and, though proximity to a town justifies taller houses, still the narrowness of the usual plot, and the fact of all parts being generally carried up to one level, have a very detrimental effect on the design of a house of this class.

If parts can be left down, and there is some extension of plan making grouping a possibility, height in parts would not be of so much consequence; and on a site on the slope of a hill may even be advantageous, but "long and low" should be the motto of the designer in this style.

Naturally, it turns upon the internal height of the rooms, and one well-known architect being asked how high he made his rooms, replied, "as low as I dare." It is probable, however, that a reaction will set in against low rooms, for having in the last century been too high through Italian influence, they now threaten to have head room insufficient to swing the proverbial cat.

There is no doubt also that bedrooms in the roof are not popular, and a general demand for flat ceilings in the top floors means an increase in total height. The number of separate bedrooms that is being increasingly required is another problem for the architects, as well as the desire for more bathrooms. These, however, are matters for the second part of this article.

WINDOWS.

Other points of design turn on the windows, the frames of which when of wood were required by a recent Building Act to be recessed 4½ inches, and as most designers wished to have them on the face, mouldings and other devices were adopted to obtain the required flatness of effect. As this rule has now been abolished the future historian will have a date limit to work by, but the fact of its abolition is a reflection on its authors. Sashes maintain a certain pre-eminence over casements on account of their comfort, and though they are mitigated by a scheme of many cross bars, the "tracery of classic architecture," as it has been called, still, no one has been able so far to overcome the defect of the glazed surface being in two planes, which is the real offence of this form of window. Woodwork in houses of this class is always painted white outside for contrast with the brickwork and from tradition, which, however, makes outside shutters a strong green color.

PORCHES.

Porches are generally unhappy; a strange bulbousness affects the wooden designs, the canopies seem to wobble upon these baluster forms, which, when they fail to be quaint, are offensive. The shell heads affected by Shaw and Devey, if not very justifiable on purist grounds as designs, are generally more successful.

CONSERVATORIES.

The rage for conservatories is one of the difficulties of this class of house, which few seem able to treat with success. There are two methods in use. The first accepts the conservatory as a structure of wood and glass, and endeavors to render it acceptable by some treatment of columns, arches or mullions of wood, with sub-divisions of moulded bars, and the second, which

endeavors to obtain a greater harmony with the solidity of the house, by enclosing the slender adjunct in a cage of brick or stone, arcading or colonading. In this second case the roof is hidden by a parapet, the ridge and furrow system of roofing is supported on girders, a system requiring very little height, while being at the same time very suitable.

It does not follow that if the second method is well carried out a much greater loss of light in the side walls is suffered, if the actual glass area be reckoned up, and compared with the other all wood and glass treatment.

MATERIALS.

The mixture of materials in the design of English suburban houses is a point worthy of notice. In old farm houses, owing to successsive alterations that have taken place, there is the picturesque of accident that is pleasing enough, but it borders dangerously on affectation in many modern examples. A general body of yellow brick, with dressings in red, is as successful as anything, and combinations of flint and brick, or stone, are also pleasing. The chief principle in the use of different materials is that a sufficient body of each should be employed; small patches of slate, for instance, in the odd corners of a tile roof are dangerous. Some judge work by its reasonableness, and there are cases where upper portions or back parts of a house may very well be constructed on a cheaper system, or with a less costly material, in a manner which is successful in economy and picturesqueness. Such methods and materials will be treated in Article 2.

BUILDING LAW.

In treating of windows we mentioned the effect of building enactments which by their rules, designed against cases of fire or bad building, have more or less hampered designers. In the new London Building Act of 1894 such rules have been much relaxed, so that wood in large boards, dormers, etc., will now probably be more freely used in suburban houses. The requirement, however, of carrying up party walls through the roofs as a parapet is retained, and is regarded by many as a vexatious enactment, although the party wall need not be carried up in the case of a semi-detached villa. Various ways of treating the feature have been attempted; perhaps the best is to mould the wall in stone or terra cotta down to the roof, much as the coping over a Gothic flying buttress was worked.

We now proceed to our second part of "Notes on Planning," in which, after a few general remarks, we shall proceed to deal with each part of the house in order, beginning with entrance, hall and staircase, etc.

Part II.

NOTES ON PLANNING.

A history of house planning has been called a history of civilization, and certain it is that the development of the Englishman's house from the time when it consisted principally of one large room—the hall—through the later Gothic, Tudor, Elizabethan, Jocobean and Georgian periods is one of the most fascinating studies that we architects have. But the historical development is not here our purpose, for we are to discuss the principles on which our every-day houses are being planned and built.

The general principles which should guide us in setting out our plan are easily defined. Firstly, we should find out exactly what we want, or what our clients want, and then show them how to get it.

Of course the plan depends largely on the site, and we can only give general principles. The view must be considered in setting out the plan and

Hampstead. MANOR FARM. Basil Champneys, Architect.

Hants. COLDHARBOUR WOOD. T. E. Collcutt, Architect.

also any special characteristics of the site. Privacy is a point always to be considered in planning the different rooms.

Long, useless corridors should be avoided as far as possible, and should always be sufficiently well lighted from the outer air. The hall, corridors and staircase can hardly be more than sufficiently lighted, and it will be found that generally the entrance, hall and staircase will be best placed on the north side so as to let the sitting-rooms face the south, and by the aid of bay windows, etc., be so designed as to catch every available ray of sunlight from east to west; for, as we have none too much in England, we should endeavor to get all we can. The sun adds brightness and cheerfulness to life, and is a destroyer of disease germs; and although it may cause our carpets and our chair-covers to fade, these can be renewed, and it is perhaps as well to remember that the house was not designed for these, but for the inhabitants, and it is their health and happiness which is the more important. Then let there be sunlight in your rooms. The position of the fittings should always be marked upon the plan so that sufficient room is left for these. The position of the dining-room table should be shown on the plan so the architect may see that there is sufficient room for the service, and the position of the sideboard should be also indicated so that its relative position with the service door may be studied. It is important to show the positions of the beds in the bedrooms, as also that of the wardrobes, washing-stands, etc., all of which may lead to an important alteration of the placing of the windows.

And again, do not allow the doors to be hung at the will of the carpenter, but show on the drawing itself which way they are to be hung. It is scarcely necessary to add that they should be so hung as to act as a screen to the room when they are opened, while cupboard doors should open so that the cupboards are lighted from the window.

The position of the fireplace is an important consideration. As a general rule the fireplace should be in the long side of the room, so as to admit of a group being formed round it; a position between two doors is generally to be avoided. The door should not be placed in a line with the fire; a position more in front is better, and less liable to blow the smoke into the room, and it may be taken as a good rule that the farther the door is from the fire the better and less liable it is to create draughts and cause the chimney to smoke.

We may now here fitly mention a few points in connection with the various parts of the house, merely prefacing these remarks by saying that the general fitting up of the house is to be treated in a subsequent article on "Internal Decoration."

The entrance may be either at the side or in the center. By having it at the side in a suburban house, especially where frontage is limited, the front rooms can be made wider. In any case some sort of porch is needed as a shelter to both visitors and residents.

The hall and staircase has undoubtedly, till within a few years ago, been much neglected. The narrow sites on which houses have often to be built no doubt accounts for this, but still there is no doubt that more might be made of the entrance hall than is often the case. A good square hall, containing an open, newel staircase, well lighted and with a fireplace, doubles the home-like effect of any house, and may be used either as an extra sitting room, if sufficiently protected from traffic, or as a pleasant place to lounge in. A hall should produce a cosy, inviting effect, which may impress the visitor with that air of hospitality and comfort with which we all desire to surround our guests. The long narrow passage, dignified by the name of hall, which occurs in many London houses, is a dreary prospect to any one entering, and, although it is sometimes unavoidable, we should do our best to get rid of it.

There is nothing to equal, for effect and comfort, an open, newel staircase, of which so many grand examples of the Elizabethan period exist, with their

easy-going steps, good square landings and absence of "winders."

A staircase should be at least 3 feet 6 inches wide, to allow of two persons passing comfortably. Avoid long flights without rests, which should occur about every ten steps. The staircase should be built sufficiently strong to avoid all creaking, than which nothing is more unpleasant. The relative height and width of tread is an important point. A good rule is the following, viz., that twice the height added to the tread should equal 24 inches. From this it will be seen that a stair 12 in. tread by 6 in. rise is a fairly good one, but a rise slightly deeper is more usual, and 11 in. tread and 6½ in. rise is a very good size. Stairs to upper floors and servants' stairs may be 10 in. rise and 7 in. tread.

A servants' staircase should be provided in a house of any pretentions.

DINING-ROOM.

Aspect.—Should be north or east, or between the two. If it is used as a breakfast room as well, it should certainly have a few points of east, so as to get the morning sun. In any case avoid west or southwest, as the level rays of the evening sun in the summer tend to make the room hot and unpleasant when it should be cool. We would here emphasize the necessity, by means of bay windows or otherwise, of getting the sun into every living room at some period of the day, and if we cannot have it in the evening, let us have it in the early morning. Therefore east is a very good position for the dining-room. Sometimes, however, the exigencies demand that we should place it facing north, and, for the reasons stated above, it answers the purpose very well. The dining-room should be in close proximity to the kitchen quarters, and in connection with the serving-room or servery, as the case may be.

The shape of a dining-room is of necessity somewhat long in character. A dining-table is at least 4 feet wide, and persons sitting down take up about 1 foot 9 inches on each side; this makes 7 feet 6 inches; then allow at least 3 feet or 3 feet 6 inches on each side for the servants to pass, and you have 13 feet 6 inches or 14 feet 6 inches, as the case may be. Therefore the dining-room should not be less than 14 feet 6 inches or 15 feet wide in the clear to allow of servants properly passing behind when the guests are seated at table. The buffet or sideboard should be placed at the servery end of the room in a recess provided for it, at the back of the master's chair. The fireplace may be placed at the side, but should not project into the room, unless the latter has an ample width, and even then the fire is liable to incommode the people when sitting at dinner.

With a width of 15 feet a good length would be 20 feet which, with a bay window at end or side, would make an average-sized dining-room for the class of house we are talking about.

A dining-room should be provided with a deep cupboard, useful for the reception of papers.

DRAWING-ROOM.

Aspect.—Probably full south is the best for this room, but practically any aspect between south and west is suitable. The room itself should be bright and cheerful, with plenty of window space, and it should not have that cold, dreary appearance which is so commom and tells us that the room is kept or preserved for great occasions or for "At Homes." It should have an inhabited look; it is, we must remember, the ladies' sitting-room, and should be full of pretty nick-nacks, etc. Bay windows, nooks and corners must not, however, be overdone in this or any other room.

Position.—It should in most cases look on to the garden, and a charming arrangement is to have the conservatory in close proximity, but not opening directly from it unless there is some lobby or vestibule between, on account of the heat and damp and the sometimes oppressive scent of flowers.

The size is not regulated as in the dining-room, but will vary considerably with the use to which it is to be put.

The route from the dining-room to the drawing-room is also specially con-

Ascot, Bucks. THE LODGE—RESIDENCE OF LEOPOLD DE ROTHSCHILD, ESQ. Geo. Devey, Architect.

Tonbridge. LEYES WOOD. R. Norman Shaw, Architect.

sidered by the architect, so as to show the house to the best advantage to the visitor, and in this a well-designed hall plays an important part.

LIBRARY.

This room, in the class of house we are speaking about, generally turns itself into the smoking-room and may be planned in conjunction with the dining-room. If used exclusively as a library, east is a good aspect, as dryness is an important consideration. Northeast is also good. As to position, it is evident that a room which we specially set apart for reading or study, should be somewhat retired from the more frequented parts of the house. A shape nearly approaching a square is good, and about 14 feet by 16 feet will be found a convenient size.

MORNING-ROOM

The library often answers the purpose of the morning-room in a small house. The *sine qua non* of this room is, that it must face southeast or east in order to catch the morning sun. If it faces due east a bay window is a good method of obtaining the southern sun during the morning. It should, naturally, be near the kitchen for convenience of service.

BILLIARD-ROOM.

A billiard-room is a great acquisition to a house. Its position in regard to the plan is not of much importance, provided it is somewhat retired. It may have lavatories in connection with it and the garden entrance. A billiard table is 12 feet by 6 feet, and 6 feet should be allowed all round for the players. This makes a net minimum size for a billiard room of 24 feet by eighteen feet. A very pretty and useful feature in a billiard room is an extra space at one end, where may be planned the fireplace, and which can be fitted up with a card table and raised lounges for watching the game itself. Sociability is certainly a feature of the end of this century, and ladies do not separate themselves nearly so much from gentlemen as was formerly the custom. This space or nook, then, can be used by the ladies when doing their work, while the gentlemen are enjoying a game at billiards without losing the pleasure of each other's society.

A top light is undoubtedly the best, that of the lantern type with glass sides and lead flat being preferable as less liable to leak. We have often, however, to be satisfied with a side light, and the best thing then is to make the windows as high up and large as possible. The loss of a top light is not much felt unless right in the country, as a billiard room is mostly used in the evening.

LAVATORIES, WATER-CLOSETS, BATH-ROOMS.

A lavatory and water-closet is generally provided in connection with a cloak-room on the ground floor near the principal entrance. Although this is a questionable proceeding, it seems to have become an established fact. In our opinion a lavatory, etc., near the garden entrance is a better method. It is all a matter of privacy, which is the great thing to be sought after in planning these conveniences. For this reason a water-closet opening off a landing staircase is not good; it can be better planned in connection with a bathroom on first floor. The bath is supplied with hot and cold water in connection with kitchen boiler, and it is often convenient to have a lavatory fitted up in the bathroom with hot and cold water, as it tends to save the servant's labor in emptying slops. A small fireplace is good in a bath-room, as much for the purposes of ventilation as of heating.

A bath can be contained in a room about 7 feet square, or about 8 feet by 7 feet, where a lavatory is provided, but a larger size is better where possible A small bathroom for the servants is almost a necessity in a well-ordered household on the upper floor. These bathrooms should be planned to come over one another so that their wastes may come into the same down pipe, and if they are planned at the

higher point of the drain service they will act the purpose of drain flushers.

KITCHEN OFFICES.

These, of course, vary according to the size of the house, the tastes of the occupier and other such considerations. The great thing in planning a kitchen is to arrange it with a view to cross ventilation, etc., so that the smell of cooking, etc., may not find its way into the house, than which nothing is worse, and yet on a confined site it is often difficult to prevent it.

A kitchen should be placed conveniently for the dining-room and front entrance, and if possible so that the servants can reach the front door without going across the main hall. The size of a kitchen of course varies, but one about 14 feet by 14 feet or 16 feet by 16 feet is an ordinary size. An underground kitchen is the *bête noire* of the household ; it increases the service and is inconvenient in many ways.

The kitchen should face north or east, but preferably north, being cool and dry.

Care should be taken in placing the kitchen fireplace so that the window should be on the left of the cook when looking towards the fire, so that she may see what she is doing. The plan should show the space for dresser and cupboards.

Although we often have advice to the contrary, the kitchen should have a wood brick floor for comfort and not a tile floor.

THE SCULLERY.

The scullery should lead from the kitchen, and if possible without having to go through the latter, from the serving-room, and should have a plain tile floor.

The sink should be placed in front of a window, with glazed tiling 18 inches up the walls, thus presenting a clean and washable surface, while the wall at the side is fitted with a plate rack.

The copper is usually placed in the scullery, and its flue should be quite separate from that of the kitchen range.

THE PANTRY.

The pantry should lead from kitchen, and a good place for it is between the kitchen and dining-room. Here the china, glass and silver are cleaned and stored, and it should be fitted with lead-lined butler's sink (with hot and cold water), and should contain glass cupboards of sufficient size, besides the usual iron safe for the plate built into the wall.

THE LARDER.

The position of the larder should of course be selected for its coolness ; it should therefore face north, and a good plan is to have a summer larder in the basement, well ventilated from the outer air. A larder should have a window at either end to prevent stagnation of air and to create a through draft. The windows should have a perforated zinc grating to prevent admission of flies while the windows are open. The larder should be placed near the kitchen, yet not sufficiently so as to be affected by its heat.

SERVANTS' HALL.

Even in a suburban house it is a great comfort to the servants to have a special room where they can do a little reading at times and also their needlework, and there is no doubt that architects in this leveling and progressive age will be called upon more and more to study the servants, and we verily believe by doing this we shall add to the comfort of the mistress.

CELLARS.

Cellars should be provided for wine, as by means of these an even temperature can be maintained. They should be fitted with slate or stone shelves, or the iron arrangement late come into vogue. The coals also, where space is limited, may be placed in a cellar, although it is preferable, because more convenient, to have them on the ground floor leading from kitchen yard.

DUST BIN.

Should be of galvanized iron with sloping lid so that the rain may not enter and set up decomposition; it should have two handles and should, it need hardly be said, be emptied daily.

BEDROOMS.

The disposition of the bedrooms on the upper floors depends to a large extent, of course, on the ground plan itself. The aspect should, where possible, be east, southeast or south, in order to get as much sun as possible in the early morning. One would naturally think that they would be planned with especial regard to the position of the bed, but how often do we find that when the house is built the position of the bed has not been considered, and that the head must be placed near a window which could easily have been placed a few feet further away, or that the bed itself is in a direct draught between the door and the fireplace. Moreover, the bed should not be placed so that the sleeper has his eyes on the light, thus, for many reasons, the position of the bed must always be shown on the plan.

No bedroom under any consideration should be without a fireplace.

The fitting up of a bedroom is comprised under "interior decoration," but we may here mention that, although we do not use our bedrooms in the same way as our Continental neighbors, yet there is no reason why they should be as bare as they usually are, and, if possible, a bay window should be given, as it forms a useful spot for a writing or dressing-table. The cupboard should be executed as part of the architectural decoration of the room, and may reach up to ceiling, so as to allow no lodgement for dust. The upper part is sometimes useful for things not often required, but which have to be preserved for occasional use, such as hand bags, etc. The best bedroom and the visitor's room should always have a dressing-room, which, if possible, is to be entered without going through the bedroom, and should have a fireplace. The hanging of the bedroom doors should be carefully considered, so that when opened they may shield the greater part of the room from the outside, and for this reason should be placed near the corner of the room. As the windows in a bedroom are usually for the purpose of lighting the room and have for a secondary purpose only the enjoyment of any fine views, the sills, as causing a certain amount of privacy, may be kept higher than in a sitting-room, and may be as much as from 3 feet 6 inches to 4 feet 6 inches from the floor.

As we mentioned in the commencement, each site has to be studied specially in regard to the plan of the house and the tastes of the client, but the foregoing notes indicate the principles commonly observed in planning the smaller houses of our suburbs and provinces. In our next article we shall deal with the materials and construction employed in their erection.

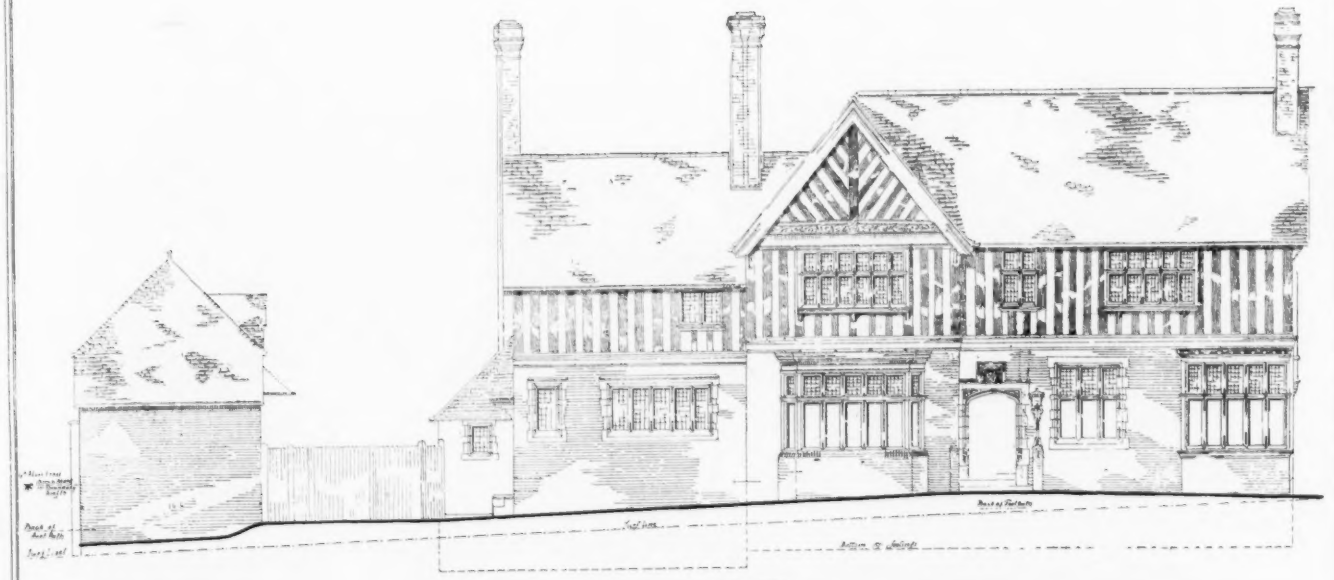
Notes. — Our illustrations scarcely need comment. We have referred to the first under "Seaside Houses," while the second and third are examples of estate work. The former is of yellow stock brick with red brick angles, while the latter is tile hung in the upper stories. Nos. 4 and 5 are remarkable for chimney grouping, especially the latter, which is the old square house type, modified by the side curly gable and front dormer. This style of grouping for chimneys is a revival of an old English practice first introduced by Sir John Vanburgh, at Blenheim, where the octagon top stage of the towers are of chimneys connected by arches. Illustration No. 6 is a good instance of minor gables subdued by a dominant roof, and No. 7 of a quiet lodge with an appropriate porch. No. 8 is a large house, but is given as presenting an instance of unaffected composition, combining sufficient dignity with great picturesqueness. The Cedars (Nos. 9 and 10) is a house which cost about $15,000, and is illustrated by geometrical drawings, which show clearly the requirements and style of a modern house in a wealthy suburb.

Banister Fletcher.

Edgbaston. ENTRANCE, FRONT—THE CEDARS. Bateman & Bateman, Architects.

Edgbaston. HALL—THE CEDARS. Bateman & Bateman, Architects.

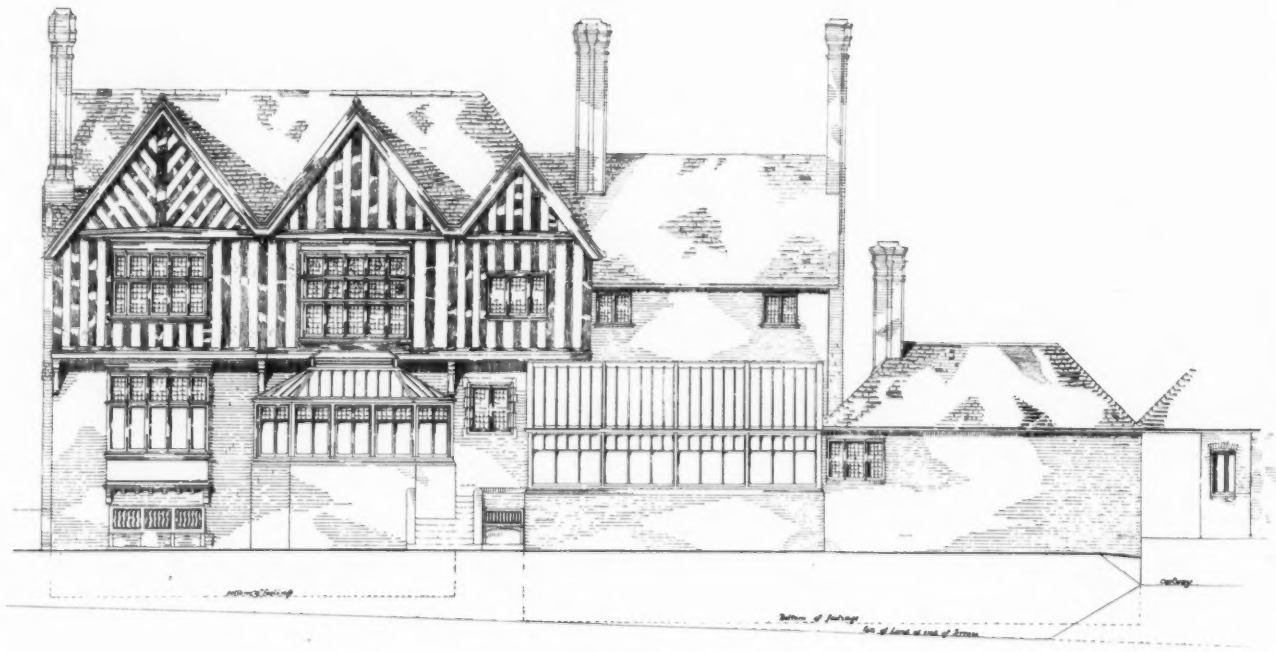
"THE CEDARS" CALTHORPE-ROAD



FRONT ELEVATION

Bateman & Bateman
Architects
December 1911

— "THE CEDARS" CALTHORPE ROAD. —



— BACK ELEVATION —

Bateman & Bateman
Architects
Dec. 1st 1898

"THE CEDARS" CALTHORPE ROAD

ELEVATION TO STABLE YARD

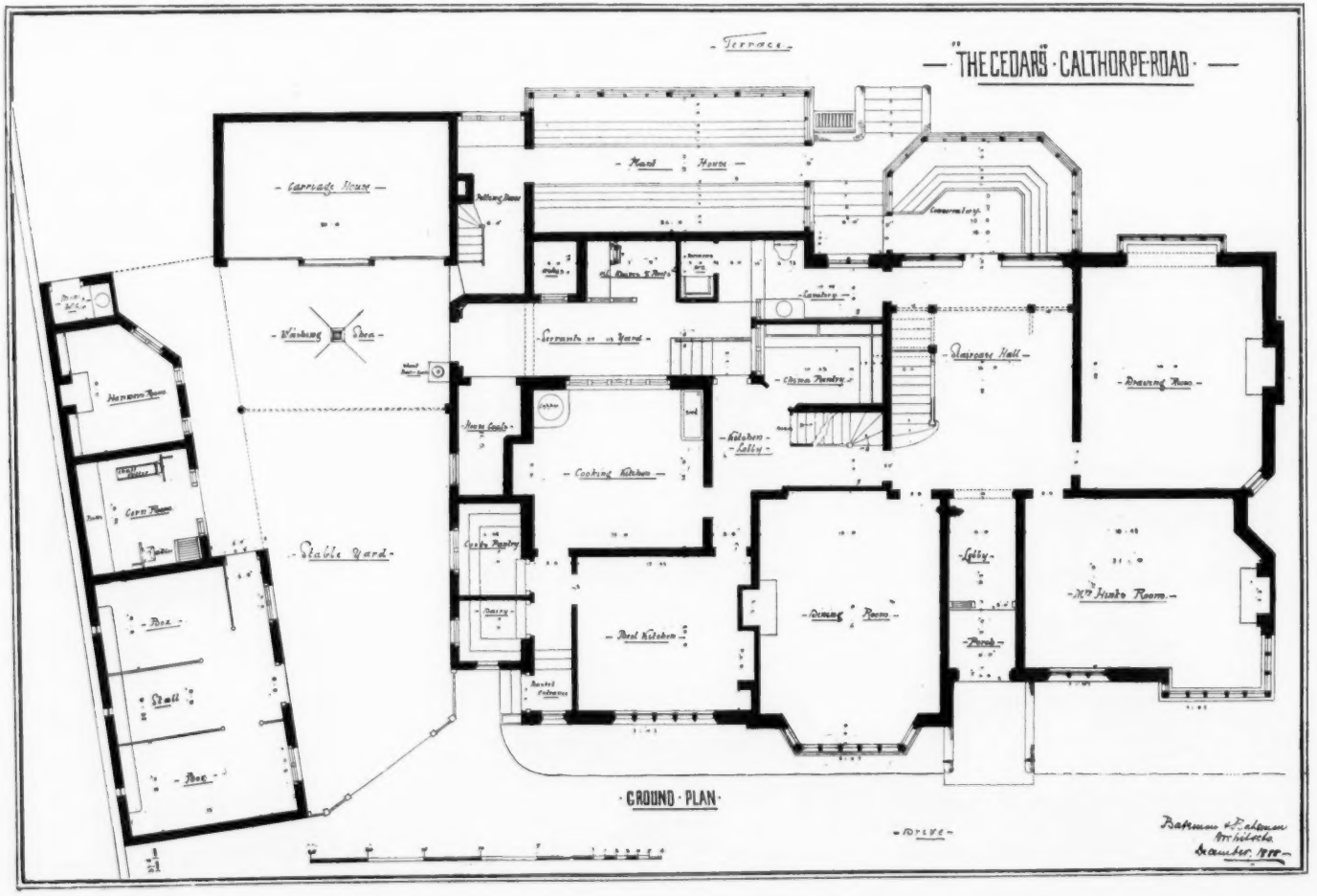
SIDE ELEVATION

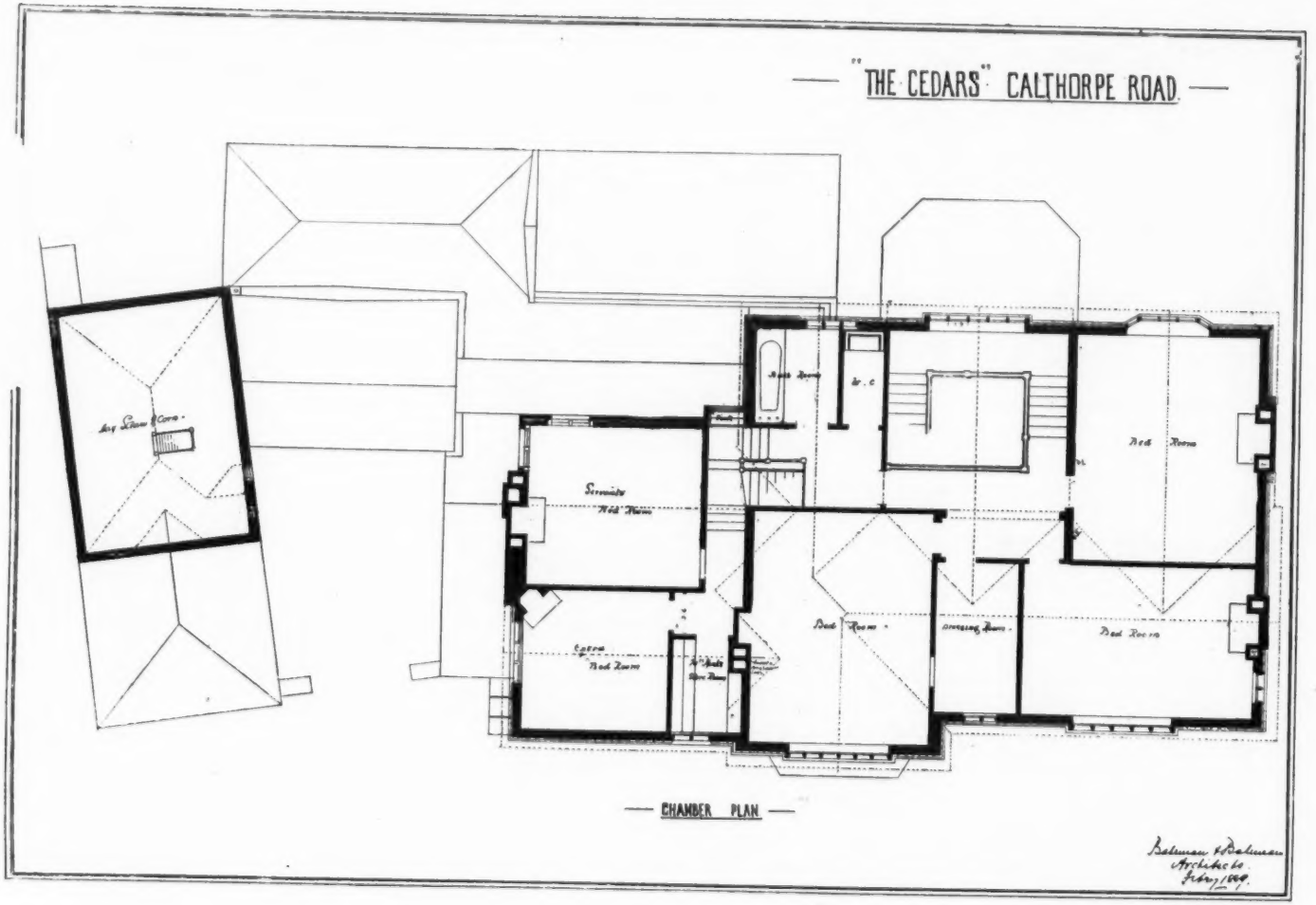
Bateman & Bateman
Architects
December 1898.

"THE CEDARS" CALTHORPE ROAD

LONGITUDINAL SECTION

Bateman Bateman


"THE CEDARS" · CALTHORPE ROAD ·
Terrace
Carriage House
Washing Shed
Harness Room
Corn Room
Stable Yard
Box
Stall
Box
Maid's Room
Conservatory
Servants' or 1st Yard
Housekeeper's Room
Housekeeper's Room
Store Closet
Kitchen
Lobby
Cooking Kitchen
Staircase Hall
Drawing Room
Cooks Pantry
Dairy
Pastry Kitchen
Dining Room
Lobby
Porch
Mr. Hinks Room
Servants' Entrance
Drive
GROUND PLAN
Batterbury & Parkinson
Architects
December 1910


"THE CEDARS" CALTHORPE ROAD
Bed Room
Dr. C
Bed Room
Servants Bed Room
Bed Room
Dressing Room
Bed Room
CHAMBER PLAN
Bateman & Bateman
Architects
Feby 1899.

CITY APARTMENT HOUSES IN PARIS.

I.

BEFORE beginning a description of French apartment houses as they exist in Paris, I will try to give a short account of the tendencies which are to be noticed in our present French architecture, and the principles which govern the construction of these houses.

The starting point of these tendencies consists in a greater strain to comply with the needs of modern life. As those needs are unceasingly transformed in proportion with the expansion of civilization, and as the progress of science affords us, every day, new means to realize new desiderata, it is plain that the architect whose aim should be to translate into his plans, by the simplest ways, the tastes and habits of his client, is forced to produce a new and original work.

It is difficult for young foreigners who come to study architecture at the École des Beaux Arts of Paris to notice that movement of ideas which prevails among settled architects, and if I insist upon it, in the beginning of this article, it is because I wish to modify the judgment that American architects, having passed a few years at the "École des Beaux Arts," may bring back home about our contemporary art.

Those ideas, in fact, are not those of the school. It is not even to be desired that those ideas should be brought into our school of art, for what is to be learned there, before all, is classical traditions, and an excessive attention to economy and practice would tend to destroy spontaneousness and imagination in the mind of beginners.

So, the school, as it is organized, does not give and does not seek to give to architects all the knowledge they ought to get.

The classical luggage it gives them is only destined to prevent their committing taste aberrations and to set for them a starting point for the searches they may undertake afterward.

It is therefore advisable for one who leaves the school to enter the office of an architect, and there he will learn how classical theories may be put into the service of originality, and instead of fettering the imagination, regulate and allow it to create works to which every one is obliged to do homage. Among works of this kind I can give as examples: the new Faculty of Sciences at the Sorbonne, the Shore House for Posts and Telegraphs, the Buffou's and Racine's Lyceums, etc. All those structures have been built by Prix de Rome men, and, nevertheless, no recollection of antiquity is to be found in them, except a perfect harmony of lines and a remarkable accuracy in the composition.

The right thing is always put in the right place. Unuseful ornament cannot be found in those buildings; and all the decorative aspect is produced by a good proportion of lines and a judicious employment of materials.

I will confine myself, for the present, in the study of apartment houses. If that sort of buildings seem to offer a slighter share of artistic interest than the others, it is because those buildings, constructed with a view to speculation, are too often placed in the hands of builders without passing through the hands of architects. It is undeniable that the needs of a city apartment house may have an artistic expression as well as those of any other buildings. But here the difficulty is increased by the superposition of uniform stories, by the dissymmetry of windows, municipal regulations, etc.

In order to reach a good solution of these difficulties it is necessary for one to consider the artist, and if the public complains that our streets are often monotonous and dull it ought to recall that, besides builders who construct, there are men who show how to build, and that, if routine and common construction are to be avoided, the first thing should be to apply to those men whose being is scarcely known, and who are called architects.

Certainly, it is not easy to build a five or six-story house according to the traditions that Greek and Roman left us, or, with still more reason, to build a fourteen or fifteen-story one in compliance with the same principles. But are we obliged to always remember what Greek and Roman have done?

As I was reading, a few weeks ago, in a very interesting article published in this magazine, and what can never be too much repeated, classical studies are necessary to architects to keep imagination in the bounds of good sense. Tradition is a fly-wheel which orders and regulates flights and freaks of fancy. The examples it bequeathes us being fruit of the reasoning of many generations ought to be consulted respectfully, that is true, but judiciously, too; and the characteristic of a good and intelligent artistical training is to teach as much to reproduce the magnificent lines of old monuments as to catch the correlativeness that links the original idea with the expression developed.

Unfortunately, classical studies do not lead always to a judicious employment of architectural forms, and Vitruvius would rightly wonder, should he happen to know how we avail ourselves of the five orders the rules of which he taught us. He would probably regret that we so well learnt his teaching, without seeking to dive into the spirit of it.

Let us take care, however, not to ascribe to classical studies errors which only come from our ignorance, and far from despising them, let us try to investigate them better and to avail ourselves of what there is good in them.

The teaching of l'Ecole des Beaux Arts of Paris for too many years seemed to be content with a servile imitation of the ancients. This arose from the fact that antiquity, and chiefly Greece, was studied at the time by learned archæologists with a precision and a method of criticism unknown up to that day. The French schools of Athens and Rome, the Villa Medici, published every year marvellous discoveries and restorations, and minds were naturally smitten with their beauties, and architects were urged to put in their structures the forms which enjoyed such favor. The memory of Titus and Caracalla's Thermæ, the Pantheon of Rome, the Cæsars' palace, the monuments of Greece, such as the Erechtheion, etc., pursued our architects when launched into business. So they were urged to put the grand ideas they had brought back from Rome into their study, which caused good but pretentious plans.

Men were very happy when the antique forms did not command them to make their structures uninhabitable.

Besides, many architects tried to bring to life again the shapes in use in Greek ornament, and, under the pretence of Frenchifying them, they contrived Neo-Greek style.

These shapes, somewhat stiff and archaic, but so suitable for the Parthenon, Erechtheion and the other old temples, gave an unsatisfactory result when introduced into exuberant French decoration. So, seeing them among rinceaux, cartouches, horns of plenty, etc., one feels an odd sensation, like that which the Venus of Milo would produce if dressed in the French fashion.

The enthusiasm and infatuation for antiquity had the effect of letting loose against the school the strong reaction at the head of which was Viollet le Duc. That reaction did not entirely succeed at that time; it moved all the artistic corporations, but was finally baffled by the resistance of the Institute.

Besides, the strain of Viollet le Duc's school fell into the opposite excess; instead of the imitation of antiquity it substituted that of mediæval architecture, which was still more out of our present habits than was the former.

In our own days, faith in antiquity is not so exclusive, and the classical training which is given in the École des Beaux Arts is understood in a much broader way, as may be attested by these words pronounced by Professor Gaudet in his opening lecture for the course of the Theory of Architecture:

"Classic," he said, "is all that deserves to be considered as such, without any acceptation of time, clime nor school. Classic cannot be decreed; it thrusts itself. One may simply state and record it. Classic is all that stands victorious in the ceaseless strife of arts; all that stands

holder of admiration universally proclaimed. And it asserts through a numberless variety of shapes and combinations the unalterable principles, reason, logic and method. The Classic, therefore, is the privilege of no time, no land, no school. Dante and Virgil, Shakespeare or Sophocle are all Classic; . . . and for us so is the Parthenon, the Thermæ and Amphitheatres, Saint Sophia or Notre Dame, Saint Ouen and Saint Peter's, Farnese Palace and Le Louvre."

A considerable tendency has been shown, besides, during these twenty last years among young architects to get out of what they call the "*style Pompier*," and seek a right expression of modern life.

That tendency which is plainly manifested in the glaringly characteristic monuments, such as industrial and school buildings, libraries, etc., is equally successfully expressed in private houses where the owner's and architect's fancy give rise to original and unique combinations.

To find a proof of this it is sufficient for one to go through the new quarters of Paris.

This tendency is not so well expressed in apartment houses which being built for general tenants ought to suit everybody, and consequently want character. But as these houses are destined for the mass, one may find there the general features and in some degree the synthesis of our actual way of conceiving the plans for habitations.

And, in fact, the examples we have taken of houses built on irregular lots, by different architects, seem composed according to one principle.

Architects have striven, for a score of years, to get rid of the fetters of old prejudices, and to give up, as much as possible, pilasters, frontons, with their ready-made forms. They also have stiven to do away with the luggage of Greek ornament. They consider it an interesting document for the study of archæology, but they put it aside as such, as they know that decorative painting and sculpture have no interest, if one does not feel for the artist, or if one has no sympathy for nature.

Moreover, to come to the logical way of thinking, it is only necessary to go back to the traditions of the old French school, which unfortunately was interrupted by the Revolution of 1793 and the long period of wars that followed, and which seems to have been forgotten and scorned for nearly this whole century.

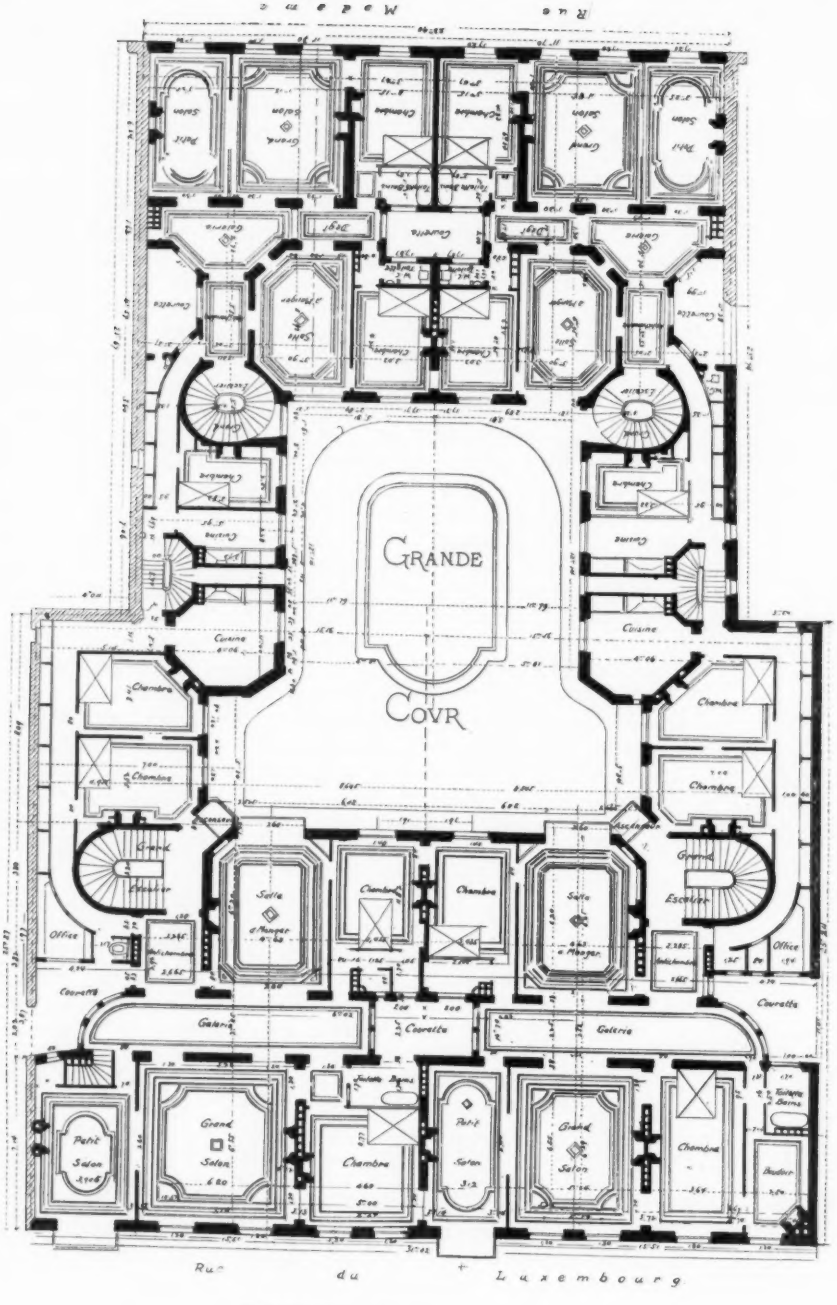
I do not mean that I praise without any reserve all that was built in the last century. The structures of that time have a character of nobility and discreet elegancy which make them most interesting bits to study. But our forefathers often sacrificed many details of inside arrangements to the symmetry of façades.

The study of American and English architecture introduced, in our way of thinking, a little more simpleness. The idea and search of comfort, such as it is understood in those countries, obliged us to get rid of the stiffness of our plans. What is for us French architects one of the main charms of American country houses is that we never feel in their composition any care from the artist to confine himself in the bounds of an appointed style. His only preoccupation seems to be the satisfaction of the habits and tastes of those who are going to live there. This gives rise to a most instructive originality and liberty.

Mediæval architecture in France was conceived upon these principles, and in our days the example of American builders who, applying them, often succeed in erecting most interesting houses, confirms our thinking that there is nothing to look for in architecture but a right expression of modern life. And if we allow classical ideas to interfere with our studies, it is not to draw in the fashion of old palaces, but to guide our taste in the study of details.

Therefore, the present tendency of French architecture, which has its obvious effect in our way of conceiving of city apartment houses, seems to be to go back to old French traditions. Simplicity in execution, sobriety in ornament, similar to the style of Louis XVI., but with a greater liberty and a slighter search after symmetry, similar to mediæval architecture.

These principles appear in the composition of the houses built in the new quarters of Paris. I mean in the



Scale in Metres.

houses built by architects, which are unhappily in the minority.

II.

Let us see, now, by a few examples how these ideas are realized. The examples I will cite are taken from houses recently built in Paris by some of the best known architects, and none of these houses has been reproduced in any magazine, until this time, neither in France nor abroad.

At the first sight we may see that all the plans are composed according to the following method: The part of the building situated along the street is double; it is to say that, in the sense of breadth, there are two series of apartments separated from each other by a gallery. Parlors and the main chambers are on the street, dining-hall, secondary apartments and bedrooms are on the yard. Kitchen and offices are often situated at the end of the apartment, in order to avoid disagreeable odors.

As for interior decoration, great originality is not to be sought for in apartment houses; for the necessity of economy obliges the architect to be content with mouldings and ornaments easy to find in trade. These ornaments are generally staff decorations similar to those of the style of Louis XV., which are simply nailed up along the walls. All these materials are of good quality and copied from good historical examples.

As the construction is nearly the same in each of these houses, I will take one of them as a type. I will analyze it, and afterwards it will be sufficient to give a short account of the particularities that may be found in the others.

I will take as a type of the apartment house in Paris a building erected in Rue du Luxembourg.

This well known street runs along the beautiful garden which gave it its name. Houses, built on one side of the street only, enjoy the view of the garden that gives them a boundless horizon of green, air and light, and gets for the inmates a delusion of being in the country. That street then is much sought for, and apartments are high-priced and comfortable there. That quarter is, however, nearly unknown and somewhat despised by foreigners, who prefer that of Champs Elysées and Bois de Boulogne. It is not the quarter of pleasure, but that of study. As it is not far from the "*Quartier latin*," being only separated from it by the Luxembourg garden, that street is chiefly sought for by the high personages of the University and men of study. Learned men members of the "*Institute*," are to be found there. It is a very good place for study besides, for the left shore of the Seine is much less noisy than the right one.

The house we describe is inhabited, among others, by M. the Rector of the Academy of Paris and by the architect of the new Sorbonne, who conceived the plans of the house. The ground, nearly rectangular, has been very ingeniously improved, and one is right in saying that no room has been lost there.

The whole of the ground belongs to two owners who settled to have a common yard to get as much air and light as possible. So both buildings appear like a single one, though they are plainly separated from each other. In order not to settle an obligation upon one of the estates, two coachways and two door-keepers' apartments have been made. Both houses may then, at will, make one or two, according as the owners agree, as it is the case now. At all events, coachways have been disposed in order that on a day of reception carriages may enter by one gate and go out by the other. What makes the service a good deal easier, the yard itself is divided in two parts by a small railing, sixty centimeters high, which can be opened to make way for carriages.

The apartments situated on Rue du Luxembourg, and enjoying the beautiful view we have spoken of, are larger and more costly than the ones on Rue Madame. They are designed for the wealthier part of the middle classes; for the one that likes comfortable life, but without fuss and display. These apartments do not require a great number of ser-

vants. One *valet de chambre*, one or two waiting-maids and a cook are generally sufficient for the service of the inmates.

The reception apartments are on the street; dining-rooms, chambers and kitchens on the yard. The four kitchens of each story are grouped in the middle of the estate, as far as possible from the apartments, so that they occasion neither smell nor noise. They are connected with a service staircase and a dumb-waiter.

The gallery, situated in the center of the reception apartments, is quite the fashion now in Paris, and one finds few houses built without this supplementary hall. It is very agreeable in fact. Pictures, vases, sculptures and general objects of art are put there. It connects parlors, dining-room and chambers. The difficulty is to give it enough air and light.

In the house we describe the gallery is lighted by two small yards, one on each end, and the doors which open on it are glassed. These doors, two meters and a-half wide, make a very nice motive of decoration.

The apartments on Rue du Luxembourg are served by elevators which seem to me to have reached the last perfection, and I hardly conceive how they could be better. These elevators being designed for a small number of tenants, are not to be directed by a conductor; and, as they are to be handled by impractical folks, they are very easily moved and offer complete security.

This double result is obtained by directing a hydraulic elevator with electricity. Hydraulic elevators, with a compensator, have, in fact, the advantage of being absolutely secure, for at every movement of its course the elevator, being poised by the compensator, forms a hydraulic balance. Besides, to handle it more easily, the engineer, M. Pifre, had the idea of adding electric buttons by which every movement can be arranged. For that purpose a very slight current is required. An electro-moving strength of two volts and a current of one-tenth ampère are quite sufficient. The handling is done by means of two buttons; one bearing the inscription *ascent* and the other *descent*. If you press the button *ascent*, and you let it go immediately, the elevator begins to ascend very slowly. If you lengthen the pressure the speed increases until its maximum is reached. If you wish to go to a certain story, you simply draw a small register bearing the number required, and press the button *ascent*. All these movements are done with an extraordinary readiness and facility.

The apartments are warmed by hot air apparatus. The low-pressure steam system which is so much used in America has not been much employed in France until lately. It is still considered too expensive, and reserved for public buildings. By way of exception, however, it is to be found in a few important houses.

In these houses radiators are scarcely employed (I mean visible radiators). However elegant they may be, they are nothing but stoves, and stoves which are always obstructive are very seldom an ornament.

So architects preferred to put in cellars, or in concealed places, steam pipes covered with radiating surfaces. The fresh air is warmed along these pipes, then it is conducted to the apartments by means of pipes laid in the thickness of the walls.

The building we are talking about, though bringing rather heavy rents, since the main apartments are leased for ten thousand francs a year, is built with unpretending materials and sparing decoration; so the construction of it was not very expensive. The whole ground occupies a surface of 1,396 square meters. Of this, the yards occupy 229 square meters, and building 1,167 square meters. The building is five stories high, without reckoning cellars and attic. The total cost of the construction did not overpass the amount of 1,100,000 francs, and was distributed as follows:

Masonry,	410,000 francs
Carpentry,	156,000 "
Covering and leadwork,	65,000 "
Marble-cutting,	15,800 "
Painting,	96,000 "
Chimney building,	30,000 "
Sculpture,	12,000 "
Interior decoration,	12,000 "

Ironwork,	145,000 francs
Elevators,	30,000 "
Heating apparatus,	35,000 "
Woodwork,	30,000 "
Total,	1,036,800 francs

This table gives a right idea of the charges for any current building in Paris. But it is to be noticed that party walls existed before the construction, and have only been raised in some places. Foundations are settled on trenches fifty centimeters deep, filled with concrete. In the cellars walls are made with "Meuliére stone." This stone is composed of quartz and limestone. It is yellow-colored and full of holes, which prevent its being used up as freestone. It makes excellent ashlar, and with addition of cement or hydraulical lime, it makes free monoliths.

That stone, which is to be found abundantly in the neighborhood of Paris, is much employed for every kind of construction. And though it presents the inconvenience of darkening in time, there are even many nice examples of the employment of it in the construction of suburban villas.

To come back to our description, freestone has been used for façades on every side, even on the yard; brick for inside walls, and plaster flags for partitioning.

Floors are constructed with double T iron beams. Above the cellars those beams are connected together by small brick arches called "voutains," to secure apartments from humidity. In the other stories deafening is simply made of rubbish ("platras").

The drainage is supplied by a big sandstone pipe which runs along the walls in the cellars, and pours waters and drainage in the main sewer on Rue du Luxembourg by means of two private sewers, one for each of the owners.

The pipes have been put in the cellars in order to be easily visited and restored in case of damage.

There is now a building constructed in the center of Paris for "Le Nord's" Company, near les Grands Boulevards, between Le Pelletier and Chauchat streets. The offices of the company are settled on the ground floor, and occupy a part of the yard which is covered with glass. The stories have been let for habitation.

The main apartment on Rue Le Pelletier is very agreeable. The glazed doors on the gallery are broad, and spread light and cheerfulness in the whole apartment. The bow windows on the façade are also an element of space and comfort. It may be observed that the architect has much employed round shapes in the composition of his plan, especially in the staircases, which allows him to obtain more room. Although the square staircase is preferable to the circular one, in point of view of monumentality, it is better to sacrifice the decorative side of the staircase in order to get greater space for the apartments

On Rue Le Pelletier main apartments are to be let for about 14,000 francs, and those on Rue Chauchat for 10,000 francs.

The plan of the estate built on Boulevard Malesherbes is interesting for its originality. The protuberance which is found in the yard is an ingenious way for getting five similar apartments facing the Boulevard. It may be seen on the plan that there are eight apartments on each story, which thus, utilizing that locality, causes a good investment. A careful examination of the plan will show many ingenious methods of getting more place and room. Each apartment is served by an elevator. The most high-priced apartments are to be let for six or seven thousand francs.

This estate, built by an insurance company, is situated in a quarter remote from the center of Paris, near the end of Boulevard Malesherbes. Apartments are to be let in that part of the city for much lower prices than in Rue Le Pelletier, for instance.

There is another attractive house built in Rue Vernet, No. 13, in the neighborhood of Les Champs Elysées and *l'Arc de Triomphe de l'Etoile*. It is quite different in style from the others. It is no more the great speculation house, the caravansary built for a considerable number of tenants. Here the smallness of the ground does not

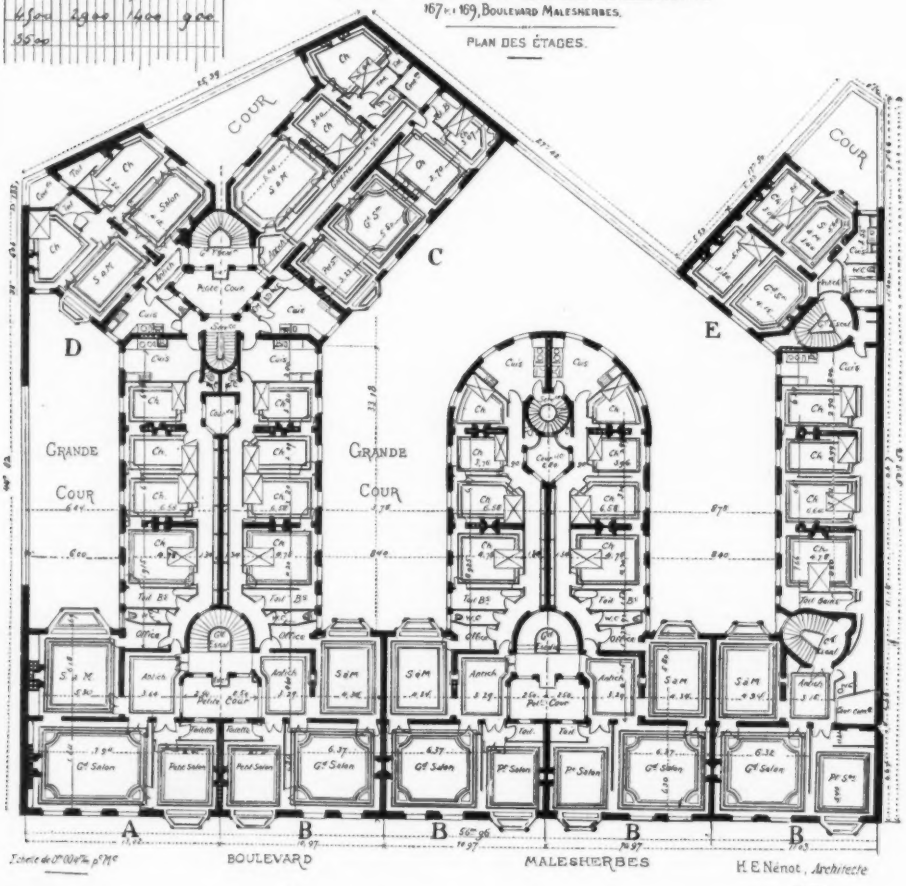
B	C	D	E
1500			
1800	2500	1200	1200
5500	5500	1600	1500
6500	3600	1800	1600
5500	3600	1600	1300
5000	3900	1300	1100
4500	2900	1400	900
5500			

5/0 à ajouter à ces prix pour le chauffage, le tapis d'escalier, l'ascenseur, le téléphone et le concierge.

PROPRIÉTÉ DE LA UNION ET PHÉNIX ESPAGNOL

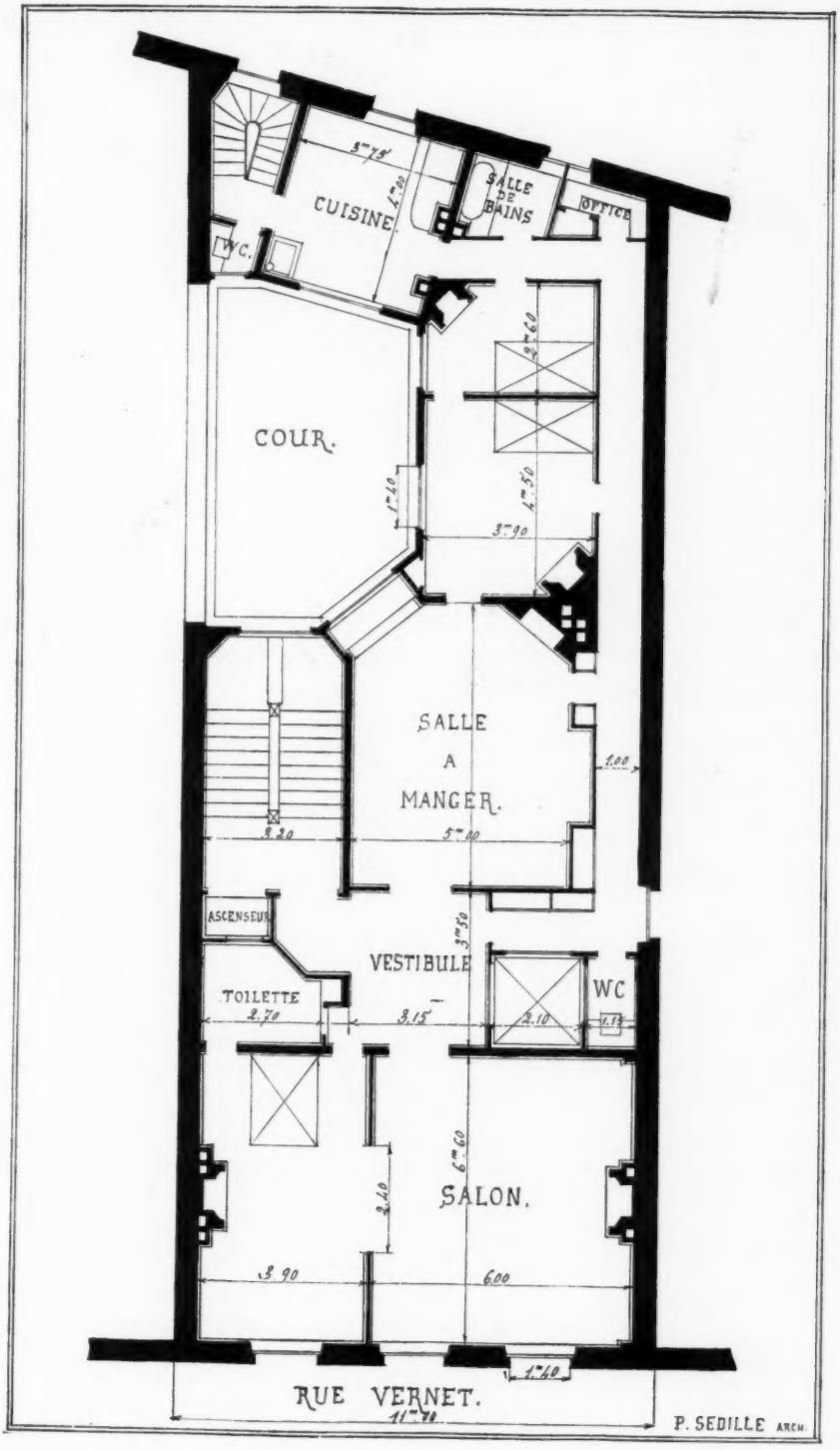
167 à 169, BOULEVARD MALESHERBES.

PLAN DES ÉTAGES.



Échelle de 0m 001m/m p. 0m

H. E. Nénot, Architecte


CUISINE
SALLE DE BAINS
OFFICE
W.C.
COUR.
SALLE A MANGER.
ASCENSEUR
VESTIBULE
TOILETTE
WC
SALON.
RUE VERNET.
P. SEDILLE ARCH.

BOULEVARD SAINT GERMAIN, NO. 250. M. Dainville, Architect.

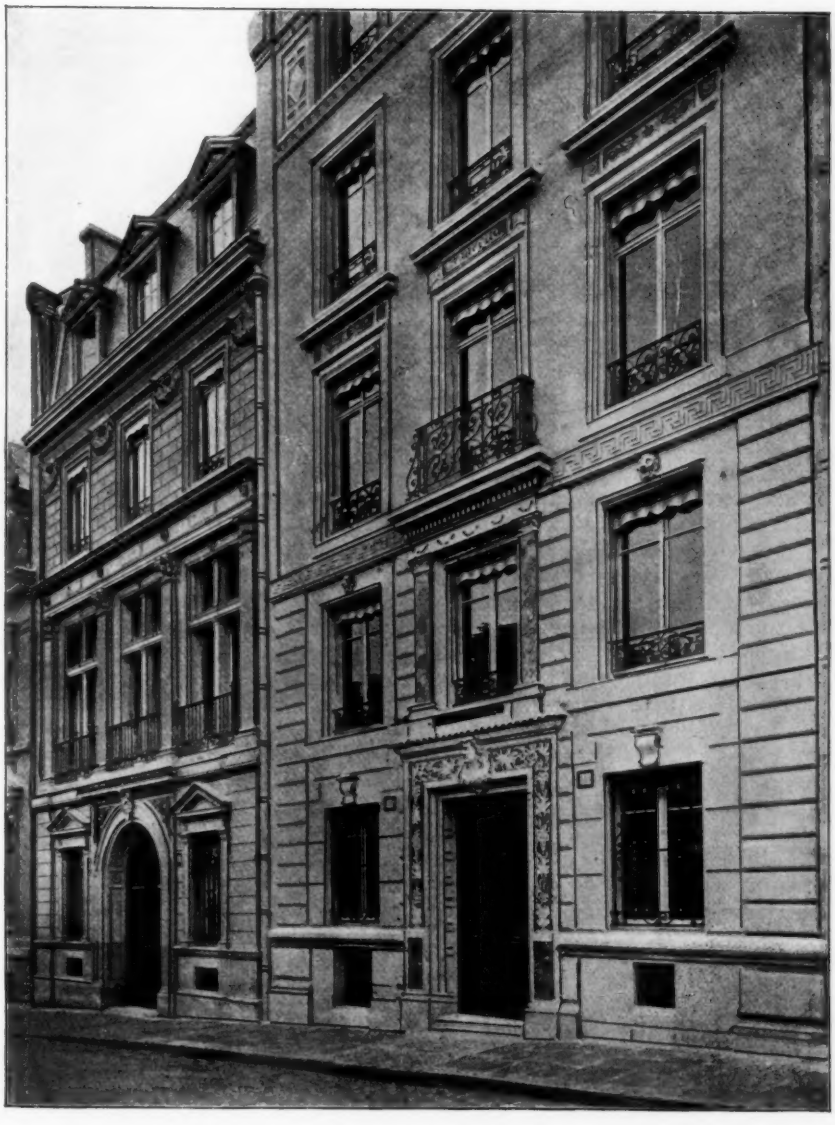
allow more than one rather small apartment on each story.

The hotel in juxtaposition, which was built by the same architect, M. Paul Sédille, and which may be considered as a very good example of modern architecture, is inhabited by the owner of both. The style of the house, though being not so rich as that of the hotel, is still of an elegant and distinguished kind, which prevents its being uninteresting.

The façade is very modern though very classic. Classic because of its good proportions and the harmony of the *ensemble;* modern by the study and the choice of materials. The entrance-door, for instance, deserves being specially mentioned. It is framed with a mosaic decoration on a golden ground. In a manner of a key-stone a gracious head of a woman by the sculptor Allar is to be found in the style of the delicate and lively heads of the Renaissance.

Let us say, by the way, that in this century of economic construction it is a lost tradition to get decorative sculptures done on houses by known artists. It is very seldom we see on a modern façade those pretty heads and masks full of expression, so many of which we see on the façades of the buildings of the seventeenth and eighteenth centuries. It is by those details that life may be given to stone, and the coldness of modern architecture may be broken.

To remark, also, in this house, the decoration of the entrance hall: In order to avoid mural paintings which are easily soiled and to avoid the cold aspect of bare stone, the architect used very thin marble slabs, which may be found for a low price in trade, to cover the walls. He used no mouldings and relief, which would have increased the cost price. All the decorative aspect is got by frames of different color, and the aspect is very satisfying without involving an extra expense. On the yard there is an iron wall with brick filling—an economic construction which has still the advan-



RUE VERNET, NO. 13. M. Sedille, Architect.

tage of giving much room on account of its thinness.

With the building on Boulevard Saint Germain, No. 250, constructed by M. Dainville for "La Nationale" Insurance Company, we fall again into the great speculation house. But this one seems to us particularly interesting on account of the monumental appearance of the façade and the good combination of the plan. The illustration is not, unhappily, sufficient to give the impression one feels before that building, which, by the dignity and the simplicity of its composition, has a share in the decoration of the Boulevard as much as a public structure.

French traditions of the eighteenth century may be found in that architecture. It is to say, fine proportions and logic in the composition. The good effect produced by that building does not come from the exuberance of the decorations, but from the satisfaction one feels seeing utility expressed by simple ways without breaking the unity of the composition. We ought to point out an obligation which influenced the composition of the plan. It is the prohibition to construct on the party walls along de Grammont's and Pozzo di Borgo's properties, and the necessity of leaving an appointed space between the new constructions and those walls. That occasions a considerable loss of space in the apartment on the left side of the plan.

This building, constructed in one of the richest quarters of Paris, beside the offices of the Ministers of Public Works, and at a short distance from the "Chambre des Députés," is destined for a rich class of tenants. So, apartments on the first floor are to be let, one for 17,000 francs, the other for 14,000 francs. We give a reproduction of the gate of the entrance door.

By these few examples an idea may be given of what a modern apartment is in Paris. It is necessary to add that elements of comfort, such as hot water in dressing closets, etc., begin to be more and more in use, and in all the apartments I have cited improvements of that kind may be noticed.

It may be observed, too, that the question of ventilation and arrangement is considered as a leading one.

Each new building has elevators and dumb-waiters.

As the municipal regulations forbid the construction of buildings more than twenty meters high, measured on the front wall, water pressure is sufficient to get hydraulical elevators. So this system is the most in use in Paris.

When a lodger wishes to settle himself in a house he signs a three years' lease, renewable every three years.

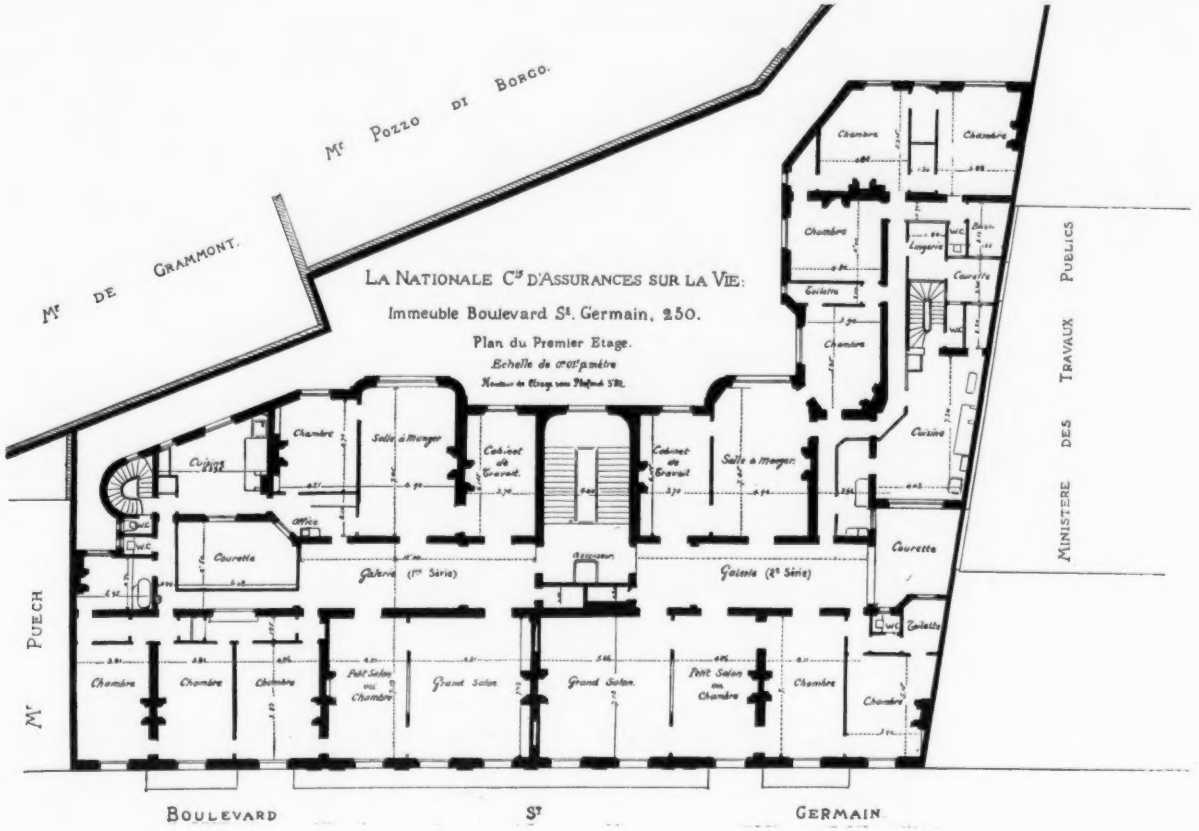
The owner is obliged to keep the apartment in good condition and to make all the repairs except those which the tenant is obliged by law to make.

During occupation, if the apartment needs important repairs, the tenant is obliged to allow them to be done, whatever inconvenience may be afforded to him, and even though he be forced to vacate his apartment for a time (Code Civil Art., 1724). But if the repairs last more than forty days the cost of the lease will be diminished in proportion with the time and with the part of the apartment he has been bereft of. If the repairs are of such a kind that they make the lodging uninhabitable, the lodger will have a right to get the lease cancelled.

The lodger is bound to observe two main obligations: 1. To use the apartment according to the purpose expressed in the lease. 2. To pay the rent at appointed time. According to the contract the lodger is to give back the apartment as he received it. Damages brought about by age or external accidents are exempted.

If an official examination of the premises has not been made the lodger is thought to have received them in a good condition, and must return them as such unless he has proofs to the contrary. The lodger is accountable for fire, unless he proves that fire occurred by chance, or by reason of accident. But the new apartments in Paris are practically fireproof.

The tenant has the right to re-decorate the interior apartments, providing that at the end of the lease he again leaves the apartment as he received it. The lease is not cancelled either by the owner's or the tenant's death.


Mr Pozzo di Borgo.
Mr de Grammont.
La Nationale Cie d'Assurances sur la Vie:
Immeuble Boulevard St. Germain, 250.
Plan du Premier Etage.
Echelle de cent.p.mètre
Hauteur de Etage sous Plafond 3M.
Ministere des Travaux Publics
Mr Puech
Boulevard
St
Germain
Chambre
Salle à Manger
Cabinet de Travail
Office
Courette
Galerie (1re Série)
Galerie (2e Série)
Ascenseur
Cuisine
W.C.
Toilette
Petit Salon ou Chambre
Grand Salon
Lingerie

ENTRANCE—BOULEVARD SAINT GERMAIN, NO. 250.

Over and above the cost of the lease the tenant has a share in the payment of taxes attached to the estate. These taxes add about seven per cent to the rent.

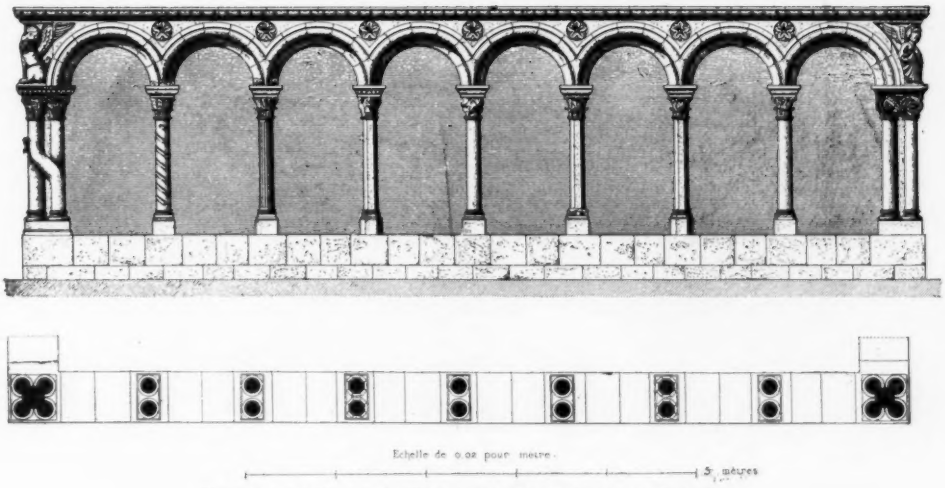
The owner has to keep the building in good repair, and the exterior of the house clean. The façade of each house in Paris has to be cleaned every tenth year, and as the city is divided into twenty *arrondissements*, two *arrondissements* are submitted to a general cleaning every year.

The *concierge*, or door-keeper, is a sort of a manager. He maintains order in the house, receives the rents and tells the owner all about what is done in the house.

Nearly all the houses we have spoken of and, generally speaking, every great house in Paris, has stables which are kept by some of the tenants.

Maurice Saglio.

WEST FRONT OF AIX CATHEDRAL



Elevation and Plan of the West Arcade, the Cloister, Aix Cathedral.

FRENCH CATHEDRALS.

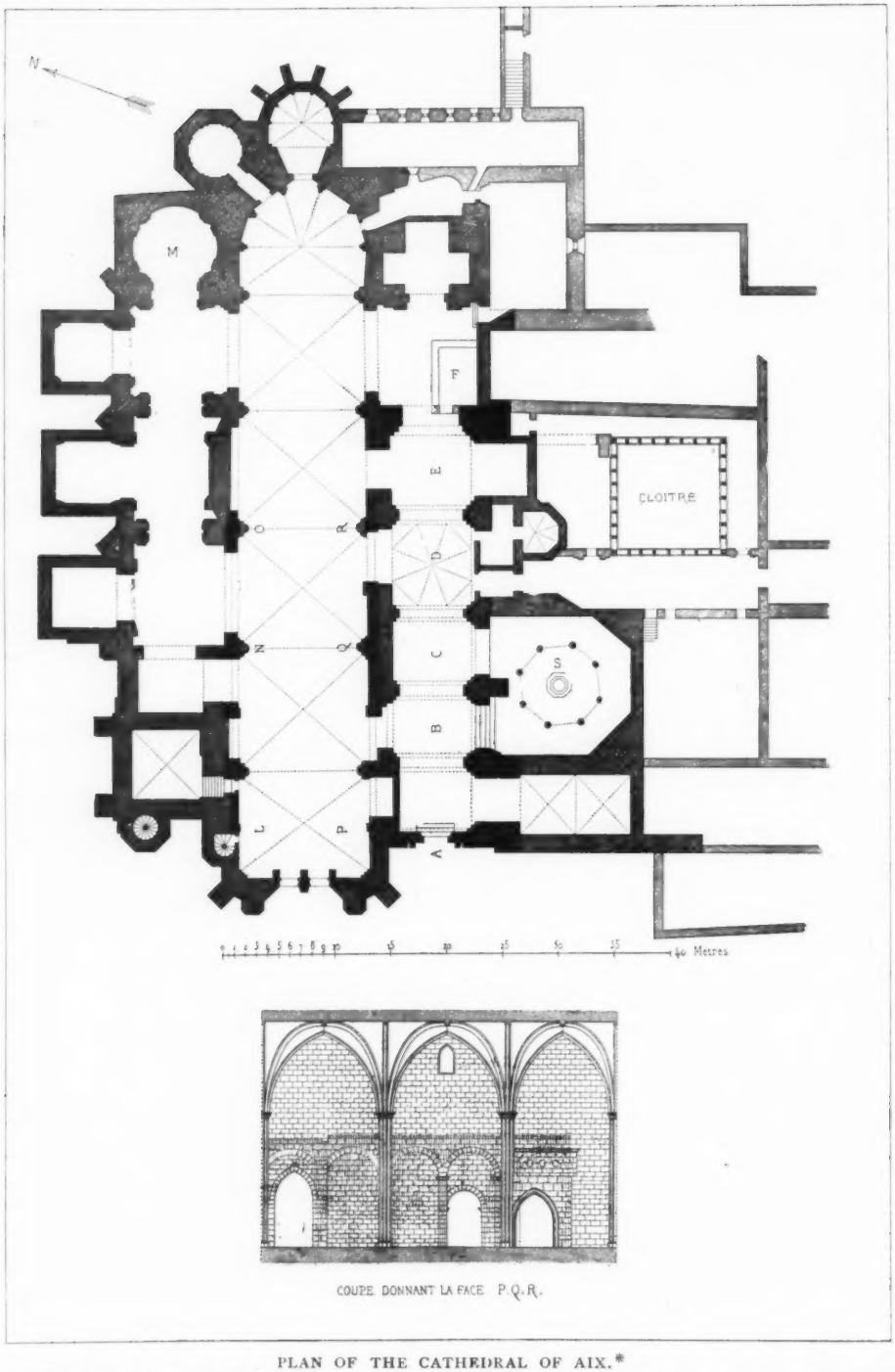
Part V'.*

THE CATHEDRALS OF PROVENCE. II.

THE cathedral of S. Sauveur (Transfiguration du S. Sauveur), at Aix-en-Provence, is one of the most interesting of Provençal churches. As is often the case, it is a mixture of styles and epochs, but varied as are its chief parts, they are so sharply divided that the blending of the work of different centuries is not so unpleasant as it often is elsewhere. The cathedral, with its south aisle of the eleventh century, its nave of the thirteenth to sixteenth, and its north aisle of the same time, greatly modified in the seventeenth and eighteenth centuries, is one of the largest churches of Provence; while the cathedral group, the church, the baptistery, the cloister, forms one of the most complete and interesting ensembles in the south, and to which the archiepiscopal palace of the seventeenth century might be added. Not all of the parts of this group are of equal interest. The Gothic portions are not notable. The baptistery was remade in the sixteenth century, though without complete loss of character. But the south aisle, which formed the primitive cathedral, and the cloister, though much injured by time, are fine specimens of Provençal Romanesque. The cloister is comparatively well known; the other portions, though but little studied by English-speaking students, have been the object of careful and loving study by an accomplished group of archæologists living under their shadow.

In Roman times Aix was a flourishing and prosperous city. According to the legend, S. Maximin, who came into Provence with the Maries and other companions and relatives of Our Lord, built an oratory close by the temple of Apollo, and which in one form or another is said to have survived until 1808. It was, doubtless, a rude and unimportant building, and on this ac-

* For introductory and historical papers see THE ARCHITECTURAL RECORD, Vol. II., Nos. 2 and 3; Vol. III Nos. 1 and 4; Vol. V., No. 3.



COUPE DONNANT LA FACE P.Q.R.

PLAN OF THE CATHEDRAL OF AIX.*

*This plan, which is copied from M. Révoil, is not quite complete. It does not indicate the steps leading to the first chapel on the right; the vaulting is omitted in the north aisles, as well as the domes in the chapels on that side. The location of the choir and altars is not shown. The dating of M. Révoil, shown by the black portions, is not followed in this study, as stated in the text; it is, however, correct in indicating the oldest parts.

count is claimed to have survived the pillage of Aix by the Saracens, who destroyed the city utterly, save for the towers of the ancient palace, and a part of the wall of the temple, which immediately adjoins the entrance wall of the south aisle of the cathedral.

A few authentic dates in the early history of the cathedral have been preserved. In 1060 Archbishop Rostang d'Hyères issued a pastoral letter to his flock, urging them to unite in the building of a new church. In 1103 the cathedral was dedicated, and in a charter issued at this time "it was resolved to consecrate the church of S. Sauveur, recently founded between two churches, to wit, to the north the church of Notre Dame, and to the south the church of S. Jean Baptiste, the Oratory of Our Lord Our Saviour being built to the east." Of these churches only one, that of S. Jean, is known with absolute certainty, being the baptistery. The question of the location of the church of Notre Dame has been argued time and again, and the edifice is supposed by M. Révoil to have filled the site of the present chapel of Notre Dame d'Espérance at the east end of the north aisle, though there is nothing to support this opinion save the fact that this is an easy solution of the problem. On the other hand, it has been contended that it was the church represented by the fragments now encased in the walls of the central nave, whose elementary mouldings appear to be of an earlier date than those of the south aisle. The chief objection to this theory is the unusual width of the nave, though if it really be Carlovingian it was not, of course, covered with a vault. The Oratory of Our Saviour was between the two, and to the east. There is no reason to doubt its traditionary situation at the head of the south nave, and the only room for rebate is, whether the oratory was within this aisle and surrounded by it, or we are to take the word to mean the whole aisle itself. This latter view has been maintained by M. Révoil, who sees in the south aisle a church of the ninth century, which is certainly nearly two centuries too early.

The south aisle or nave of the cathedral is a church complete in itself, and has all the characteristics of a Provençal church of the eleventh century. It is a rectangle of five bays, of which the fourth has an octagonal dome, and the others are covered by pointed tunnel vaults. Its architectural characteristics are almost identical with those of the cathedral of Avignon. In both are pointed tunnel vaults, carried on plain double arches, with rectangular piers, whose outer parts are cut away for a column, with capitals of the Corinthian type considerably modified and changed. In both a carved band is carried at the base of the vault, while each bay has double round wall arches with small hood moulds. In nothing, save in the detail of the capitals of the longitudinal arches — one of which shows a man stretched out, his head serving as the corner—is there anything different from what may be seen in the cathedral of Avignon. The dome bay is simpler, being surrounded by four plain single round arches, with small pendentives in the corners of the square, with the symbols of the Evangelists in their bases. A carved string forms the base of the octagon, which is covered by a dome with ribs, treated as pilasters, in the centre of each face and a small opening in the centre, a system identical with that of the dome under the western tower of the cathedral of Avignon.

This structure now forms the south aisle of the cathedral, the Gothic building having been added to it on the north and east. It is, as has been said, a complete church in itself, since in no Provençal church of this type do we find a dome save as forming part of the choir and preceding the apse. It is true, the presbyterium, or fifth bay, is a novel feature, but this does not affect the fact that this nave was a complete church in its origin, and could not have been a part of another edifice. It is easy to see, therefore, that we have here the church dedicated in 1103, for the forty odd years which separate this dedication from that of the cathedral of Avignon is not too great, notwithstanding the identity in style. But in the first three bays of the adjoining

ENTRANCE TO SOUTH AISLE, AIX CATHEDRAL.

central nave are the remains of round longitudinal arches, two to each Gothic bay, which are obviously Romanesque. To what structure did they belong?

Certainly not to a three-aisled church of which the south aisle has long survived, for there are no early Provençal churches with more than one dome. In 1092 Archbishop Pierre Gaufridi issued a charter referring to the church as having been deserted and then augmented and enriched by the Prévôt Benoît, and announcing an indulgence to all who would contribute to the continuance of the work. If the remains in the central aisle are not Carlovingian—and there is no evidence for or against such a proposition—it might represent some additions begun at this time, and not finished when the south aisle was dedicated in 1103. But at least it is certain that in 1285 Rostang de Noves found his cathedral insufficient for his needs, and set about building the Gothic cathedral.

The entrance portal of the south aisle (1080) is a beautiful example of the Provençal use of Roman motifs. On each side of the door is a channelled column, variously fluted. The capitals, much defaced and slightly different, are modeled after the Corinthian type, but show considerable departure from it. Above the abacus is a block, corresponding to the entablature, supporting an uncarved moulding on the right, and one with egg-and-dart and dentiles on the left. They carry a round arch, whose upper edge is ornamented with small fillets and acanthus leaves, while across the base is a built-up lintel. This portal is enclosed in a frontispiece formed by two large columns, with an entablature. The columns are manifestly from a Roman structure, since their upper fluted parts are of unequal lengths. The capitals are without the heavily carved abaci of the inner columns, but carry plain blocks as below, decorated above with a richly carved egg-and-dart and ornamented consoles, which are continued across the space between them. The remaining portions of the front are featureless. To the right is a heavy wall of large blocks of finely cut stones, which is supposed to be a fragment of the temple of Apollo. It is lighted by some small round-headed windows, and is surmounted by a modern passage which communicates with the buildings at its right.

Heretofore I have only considered the interior of this nave as in its primitive state, without reference to the chapels which open out from it. These are not few in number, but fortunately they are so disposed as not to interfere with the aspect of the original structure, whose primitive character is clearly marked. This is greatly helped by the fact that it is connected with the central nave by two small openings only, and though now an aisle of the larger church, it is, in a measure, separate and independent.

On the south side each bay has a different feature. In the first a low segmental arch leads to a low chapel of two bays, several steps down, which was once the chapel of the Resurrection, founded by the canon Honoré de Pinchinat in 1535. It is now used as a store-room for chairs. In the next two bays pointed arches below the wall arches open into the baptistery. Though much modified and given its present form by the canon Jean de Léone in 1577, it is a structure of the greatest interest. It is an octagon with an inner series of eight superb monolithic columns of granite and green marble, with fine Corinthian capitals, said to have been taken from the temple of Apollo, and which carry small round arches. The upper part or lantern is entirely the work of M. de Léone, and consists of small decorated panels, with oval windows above and a lantern and dome. Seven altars are disposed around the passage that surrounds this centre, with paintings executed in 1847–1849, representing the Seven Sacraments. The date of this building is not known, but its materials are clearly much earlier than any part of the cathedral, the columns being certainly Roman.

In the fourth bay is an upper Gothic chamber above the passage leading to the sacristy. In the fifth bay is the chapel of the Sacré Cœur, built in 1531. It is a rectangular vaulted structure,

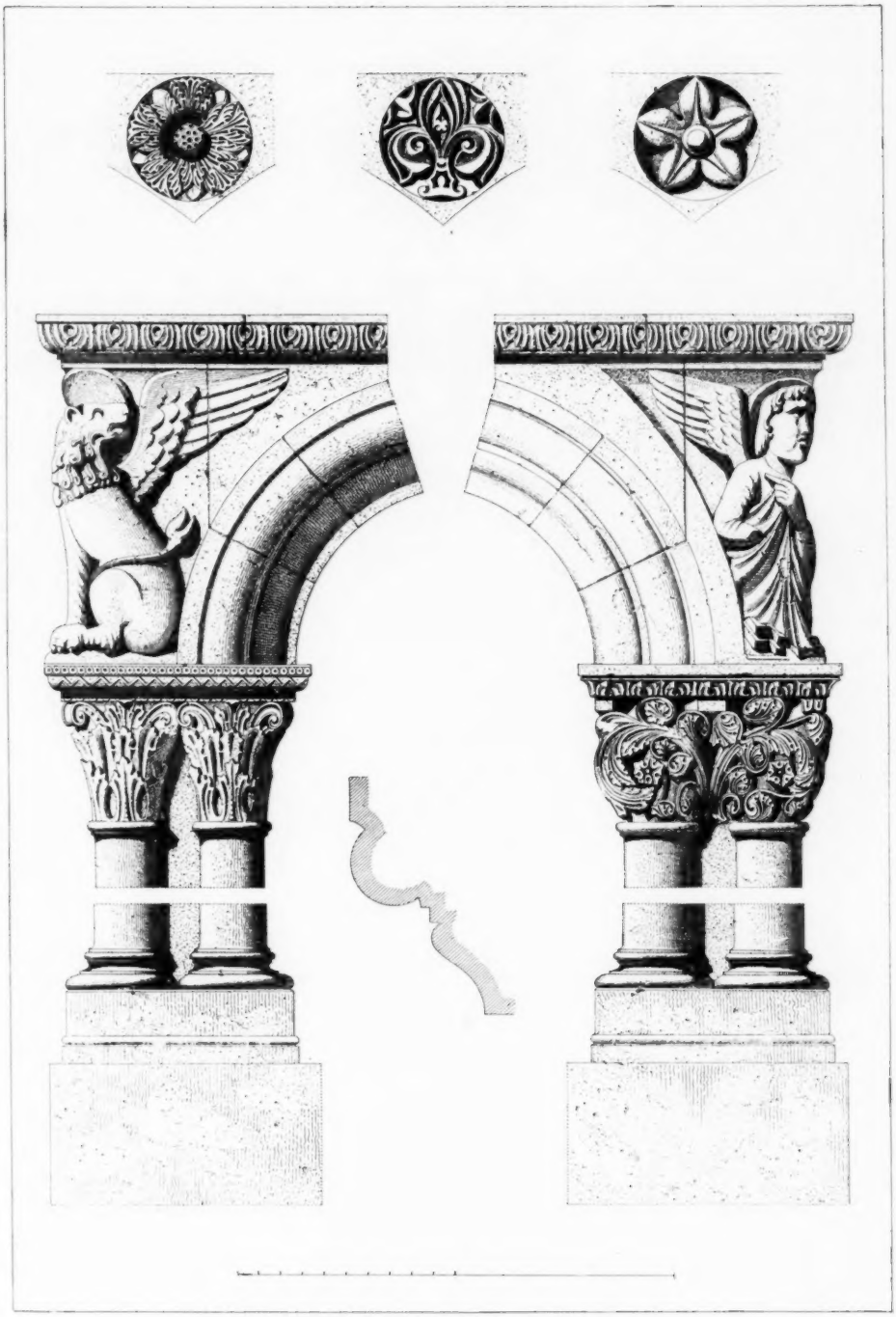
THE CLOISTER OF AIX CATHEDRAL.
Looking toward the Southeast.

with a large flamboyant window in the south wall, filled with some good painted glass, chiefly of the sixteenth century. Opposite it, on the other side of the aisle, is a small modern chapel with two columns taken from the ancient Sainte Chapelle or Oratory. These are the solitary fragments of this once venerated structure now remaining in the cathedral, though the debris of its foundations exist below the pavement.

With this bay the cathedral of the eleventh century comes to an end. The new church begins to the east of it in the most abrupt manner, the mouldings of the old and the new piers, distinct and different, meeting without attempt at juncture. The stonework of the piers and floors is continued in the same manner. The division is affected directly at the arch, the piers of the new part having bases, while those of the old are without them.

The celebrated cloister of the cathedral, though it has suffered severely with time, is one of the most interesting monuments of its class in Provence. Its oldest parts date from the year 1080, and are attributed to the Prévôt Benoît. Nothing remains to indicate the original covering of the walks, but the arcades are in a tolerable state of preservation. On the north side they stand free, without roofing; on the other three sides they support some ugly and unimportant buildings. It is a rectangle, with eight arches on each side, resting on coupled columns whose delicate shafts, circular, polygonal or twisted, stand on a low wall or base, which runs entirely around the cloister, interrupted only on the north side by an entrance to the garden that once formed its centre.

The corners of the arcades are emphasized by piers of different design. On the northwest corner the pier is decorated with columns, bent to form a sort of X pattern. At the northeast corner is a complicated pier with columns on one side, a relief of S. Peter on another, and a strip of ornament on the third. The southeast pier has



DETAIL OF THE CLOISTER, AIX CATHEDRAL.
The Northwest and Southwest Angles.

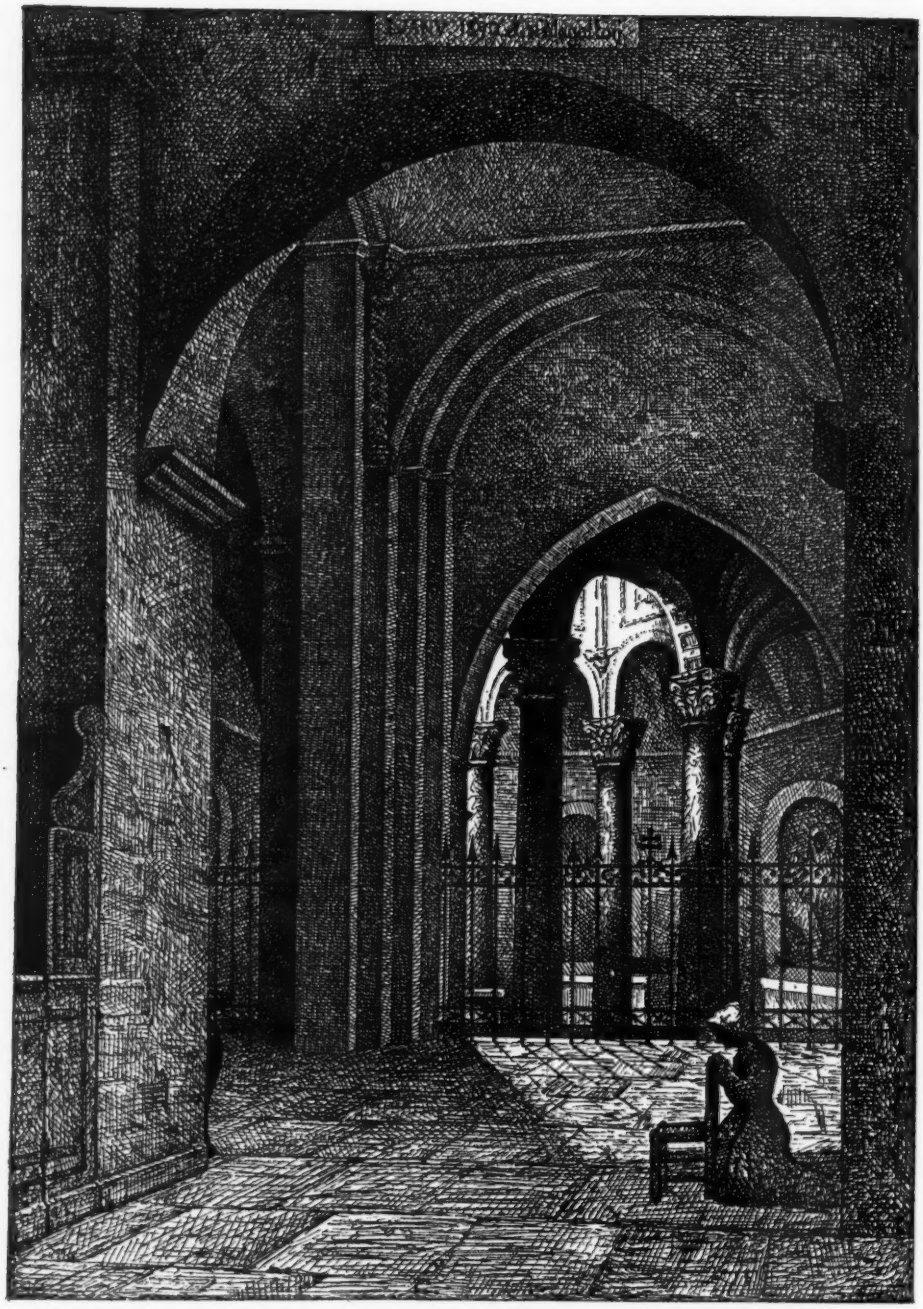
DETAIL FROM THE CLOISTER, AIX CATHEDRAL.

richly panelled sides and a large square capital of acanthus leaves. The south-west pier has a columnette on each corner. Over each is a symbol of an Evangelist, fine strong figures admirably suited to the places they occupy.

The arches of the arcade have a broad inner surface towards tne quadrangle, with small carved foliated disks in the spandrils. Towards the walks they are variously treated. The north arcade has an inner finish of a roll with a hollow above. In the spandrils are foliated rosettes, and at the origin of the arches are ornaments, now too much disfigured to be intelligible. Several of the capitals are ornamented with scenes in relief, much defaced. On one are the Annunciation, the Nativity and the Circumcision; another has the Adoration of the Magi and Jesus teaching in the Temple; a third has the Crucifixion, the Descent from the Cross and the Entombment. In the eastern arcade the arches have a rich zigzag ornament, with grotesques in the spandrils and a carved string above. Near the centre a mutilated statue, perhaps of the Virgin, is applied to one of the columns. The capitals are chiefly foliated. On the inner enclosing wall of this gallery have been gathered a variety of inscriptions, statues, etc., obtained in the repairs to which the cathedral has been subjected. The arches of the south arcade have a lower roll beneath a deep hollow; two of them are ornamented with flat round-ended leaves, and the disks in the spandrils have rather flat foliage. The west arcade is similar to the north, with a carved string at the springing of the vault. There are several figured capitals in this gallery, but most of them, as in the south walk, are foliated, with an abundant use of the acanthus.

As a type of a Provençal church of the eleventh century the cathedral of Aix might be dismissed at this point, for it was not until more than two hundred years after the building of the cloister that it was enlarged in such a manner that the new part completely dominated the old. The Gothic portion was begun with the building of the apse, the choir and the two arms of the transept in 1285. The work was long delayed. In 1306 Archbishop Rostang announced an indulgence to those who would contribute to the building of his new cathedral. In 1323 the tower at the west end of the north nave was begun by Archbishop Jacques de Concos. The work dragged on more slowly. New operations were begun upon the tower in 1411, at which date the apse and the transepts were completed. Shortly after, in 1442, the little chapel of S. Mitre, behind the apse, was begun by the master workman, Pierre Cappellet, or Pierre de la Chapelle, who is the earliest recorded artisan known in connection with the cathedral. Previously the north aisle was begun by the transept and the chapel of S. Grégoire by Archbishop Armand de Narcisso, or de S. Urcisse (died 1348). Another chapel, of the Université, flanked the tower, leaving an open space between them, which was filled by the chapel of Notre Dame, built by the architect Gabriel de Salicibus, of Lombard extraction, under the direction of Archbishop Olivier de Pennart, who consecrated it in 1470. In 1477 the first stone of the portal of the central nave was laid, and the cathedral was finally dedicated in 1534. In the north, a structure whose erection was spread over so long a period, would have been distinguished by many striking differences in style. But the Gothic of the south was less ambitious than that of the north, and a considerable uniformity prevails in the various parts. At least, it may be said that the cathedral of Aix is singularly regular, even though it is deficient in the more splendid development of the north.

The central nave, whose axis is slightly inclined, consists of five bays with an apse of seven sides. The arrangement of the choir is peculiar for a French church, and is the same as in Westminster Abbey, which, as is well known, follows the usual Spanish custom, which may be seen also in some Italian churches, as that of the Frari at Venice. The high altar is within the apse. The fifth bay of the nave serves as a crossing, large arches opening into the aisles on either side. In the fourth bay, and wholly removed



INTERIOR OF THE CATHEDRAL OF AIX, LOOKING TOWARD BAPTISTERY.
Drawn by J. de Magallon.

from the latter, is the choir, with the seats for the clergy. Its woodwork (1720) is not noteworthy, but immediately above the stalls is stretched a splendid series of tapestries, which once adorned the cathedral of S. Paul in London. The authorship of the designs, which treat of the principal mysteries of the life of Our Lord and of the Virgin, is not positively known, but competent critics attribute them to Quentin Metsys.

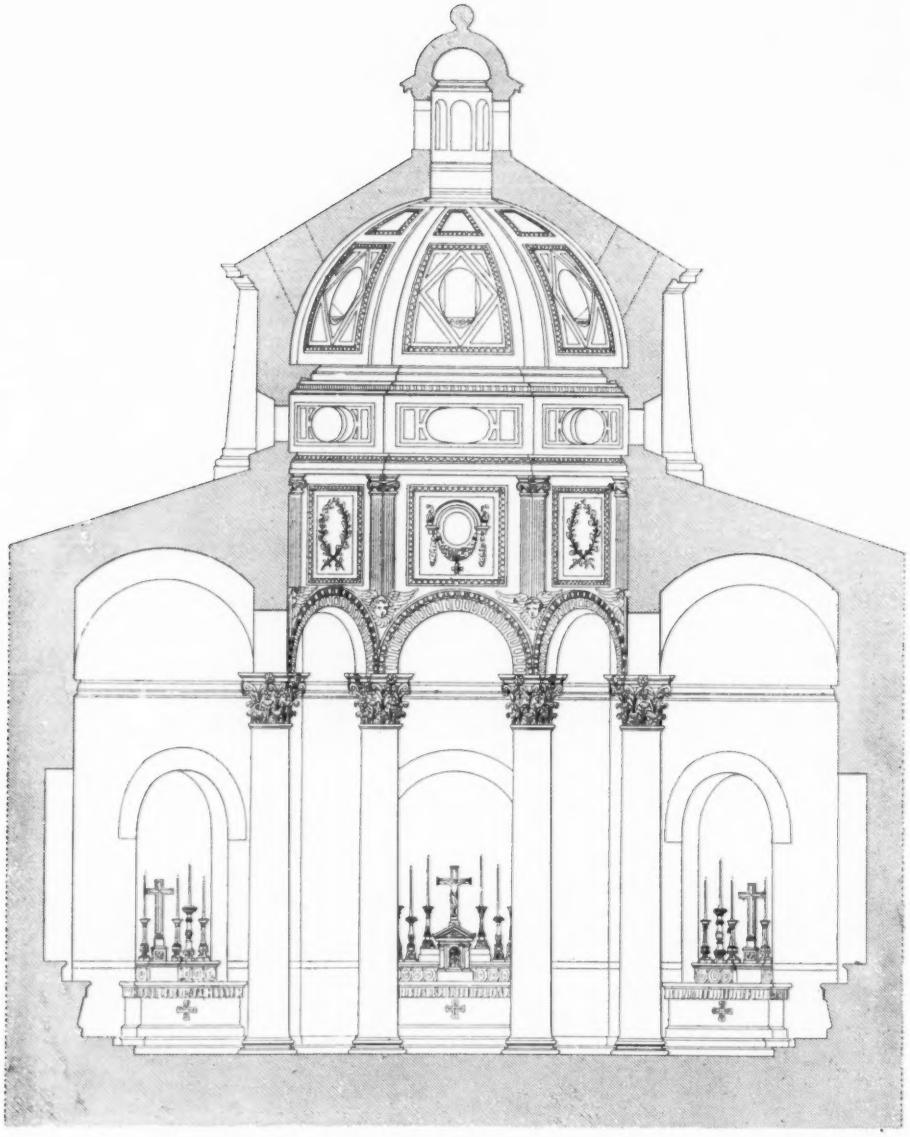
The five bays of the nave have pointed cross vaults, with diagonal and wall ribs, each with separate columnettes, that make a clustered pier between each bay. The most striking peculiarity of the nave is not its Gothic detail, which is quite unimportant, but the fact that throughout its greatest length it is almost entirely enclosed within solid walls, in which only a few small openings are cut to the adjoining aisles or naves. The bay just before the apse is the only one in which both the north and south arches are open clear from vaulting to floor, and here alone does the visitor receive the impression of standing in a Gothic church with aisles.

This unusual construction has resulted in giving considerable variety to the nave walls, from the introduction of chapels, arches, inscriptions and other features. Thus the first bay has, on the south side, a low chapel cut in the enormously thick wall between the two naves. Above, a singular little rectangular Gothic oriel projects into the nave, with four small irregularly placed windows. It served as a gallery for the Counts of Provence when attending mass, and formerly communicated with a tribune directly behind it in the south aisle, which was walled up in the last restorations. The next two bays have each two round arches which belong to the earlier construction, but only one is visible on the north side, the third bay being completely open to the north aisle. The nave is lighted by windows in the upper wall of the first, second and fourth bays, but is without the triforium and clearstory of the typical Gothic church.

The apse is pleasingly proportioned. Each bay is lighted by a long, narrow window, divided by a slender columnette, all, unfortunately, now blocked up for nearly half their height. Bundles of columnettes carry the vaults, the outer pair belonging to the arches carried over the windows, while the central ones, which carry the vault, are interrupted by niches near their bases. An arcade of pointed trefoiled arches, three to each bay, is carried around the base. The whole is painted in unpretentious designs that agreeably harmonize with the painted glass of the windows, which is modern, and dates from the restoration of the sanctuary in 1860. Two small chapels, whose entrance arches form part of the arcade at the base of the apse wall, open from it. The earliest, dedicated to S. Mitre, and built by Archbishop Aymon Nicolaï, is a charming little structure of seven sides, reproducing in its general form the characteristics of the cathedral apse. Its vault is carried on columnettes in the angles, and the five central bays are lighted by windows in the upper wall. Over the altar is the tomb of S. Mitre, a fine stone sarcophagus taken from the ancient cathedral of Aix, the church of Notre Dame de la Seds, which has now entirely disappeared, though its site is marked by a modern church of the same name. Adjoining this chapel to the left is a passage that leads to the chapel of S. Jean, built in 1582. It is an octagon, with Corinthian pilasters, and is lighted by a dome.

In a sense there are no transepts in this cathedral, but the structure of the central nave is such that the side bays adjoining the fifth bay have the effect of transepts, and somewhat their value. On the south side it is a continuation of the south half. At its east end is a chapel (1739) with three rectangular arms. Its entrance is in the style of the last century, with Doric pilasters, a particularly unhappy ending to the ancient aisle before it.

The north aisle of the cathedral, now known as the nave of Notre Dame d'Espérance from the chapel at its east end, is the result, as has been said, of the building of a series of chapels of the same height and width as the bays



SECTION OF THE BAPTISTERY, AIX CATHEDRAL. From Isabelle.

of the central nave, from which they open. Greatly injured in the religious wars of the sixteenth century, its rebuilding was continued almost throughout the following century, from 1594 to 1695, during which time it was completely modified. Internal buttresses were built between the bays, with arches decorated with monumental doorways in the classic taste of the time. The Doric order is employed in the first bay, the Ionic in the second and the Corinthian in the third. The chapels now became an aisle, though the bays are sharply cut off from each other, and small rectangular chapels—insignificant structures with low domes—were built out from the three larger ones. To the east the nave is closed by the chapel of Notre Dame d'Espérance, a circular structure with a dome carried on a drum. Its decoration with Corinthian pilasters was completed in 1697.

The façade of the central nave is the most notable external part of the cathedral, and is a charming composition of the fifteenth century. The first stone was laid by Archbishop Olivier de Pennart in 1477; it was begun by Léon Alveringena and completed by Pierre Soqueti, who began his work in 1500. The portal is a large recessed, pointed arch, with a delicate reversed outer curve that rises up before the window above. Decorated buttresses on either side form part of its decoration, and the façade is enclosed by plain diagonal buttresses on either corner. On each side of the door are statues of the Apostles, with decorated pedestals and canopies. The portal is rather shallow, containing only two of these statues on each side, the others being continued on the inner buttresses and wall of the front. Within the arch is decorated with a series of closely set cherubim heads, and an outer series of seated patriarchs under canopies.

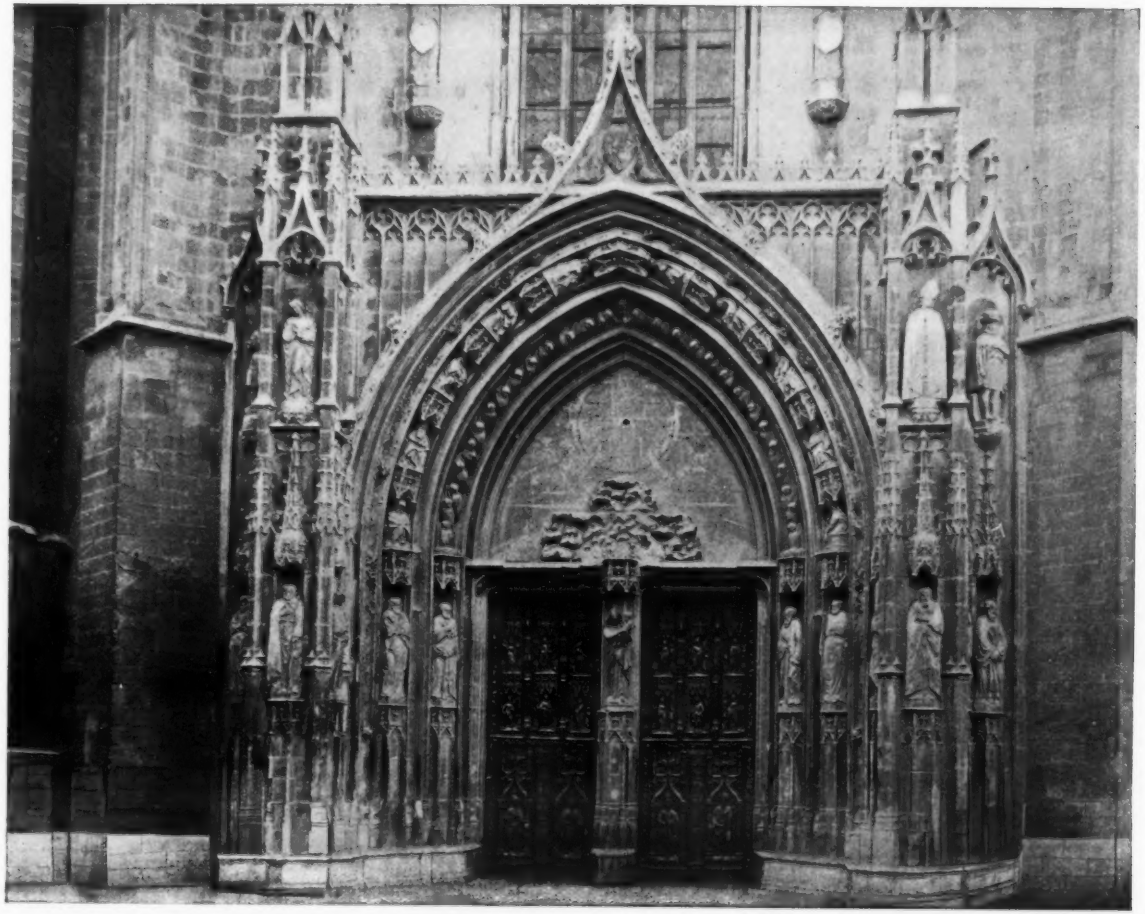
On the central pier that divides the doorway is a statue of the Virgin and Child, a charming and delightful work which, with the sculptures in the arches above, is all the sculpture of the portal that has survived to our day. The Transfiguration that filled the tympanum has disappeared save the Mount. All the other statues, save that of S. Michel, on the apex of the low gable of the front, were destroyed in the Revolution, the present sculptures having been put in place about fifty years ago. The original sculpture is attributed to Soqueti, and the statue of the Virgin shows him to have been a master of no ordinary power. The interest of this front suffers, of course, from the loss of so much of its original decoration, but it is an exceedingly good piece of composition; the parts harmonize admirably with each other, and although neither imposing nor elaborate, it is a very interesting work.

The carved wood doors (1504), which are kept encased in wooden covers, are among the most remarkable monuments of their class in southern France. Delightful examples of wood carving, their abundant detail, partly Gothic, partly Renaissance, testifies to their early date. They are unequally divided into two parts, of which the lower contains two large panelled niches in each door, with figures of Isaiah, Jeremiah, Ezekial and Daniel. The upper parts have the twelve Sybols in two rows. All the figures have Gothic canopies, and are surrounded by foliage, or separated by richly carved pilasters or miniature Gothic buttresses. Internally the doors have a skeleton frame of richly chased bronze.*

The tower closes the north nave at the west end, and is recessed nearly a bay behind the line of the façade of the central nave. It has a large square base, without portals, with heavy buttresses on the corners that rise to the top of the square portion. It is plain and severe, with a large octagonal stair-tower on the northern side of the west face. The upper stage is octagonal, with a narrow round arched window in each face. The tower was never finished, but was completed in 1880, with an open balustrade with pinnacles rising at each corner.

Notwithstanding the importance of

*A cast of these doors, with their architectural framework, including the Virgin in the centre, is in the Metropolitan Museum, New York.



MAIN DOORWAY, AIX CATHEDRAL.

the cathedral of Aix in size, and the activity and importance of the city, this church appears to have had no influence on the other cathedrals of Provence or upon any Provençal church. Its Gothic portion was built at a time too late to have had many copiers, and its Romanesque portion is chiefly valuable because its date is tolerably well authenticated. This earlier portion contains no features that are not constantly repeated in Provence, and the whole cathedral is rather a type of a certain grade of architectural progress, than a vigorous, active work, full of promise for the future, suggestive and progressive in its art.

Barr Ferree.

PANEL FROM THE CLOISTER, AIX CATHEDRAL.

LINEAR PERSPECTIVE.

Part II.

THE REPRESENTATION OF SHADOWS AND REFLECTIONS.

WHEN considering the perspective of shadows and reflections new limits present themselves. It is at once evident that only theoretically exact delineations can be obtained, hard and true, and absolutely irrespective of diffusion of light and of the breaking up of the image due to an imperfect reflecting surface, both of which have to be considered, and can often be made of the greatest assistance in the production of a picture. Proceeding, therefore, upon strict lines, a shadow may be defined as the absence of light upon some object or surface due to some opaque body intervening between it and the source of light. To determine the limits of the shadow, it is therefore necessary to ascertain where the rays of light which just escape the intervening object infringe upon that upon which the shadow is cast; and this, it will be noted, can be done in perspective as readily as upon plan and elevation.

Quite a simple case is shown in Fig. 10. An upright post or rod, *a b*, has its shadow cast upon the horizontal surface, or floor, upon which it rests at *b*, from a point of light K. First, a point *k* has to be found where a perpendicular dropped from K will infringe upon this horizontal surface, which, as it is the plan of K, is easy enough according to the rules laid down in Part I. From *k* a line is then drawn through *b* and continued until it is cut at *c* by another line drawn from K through *a*. It will be at once seen that *b c* is the shadow of the rod *a b* as projected from K; as, so long as the rod *a b* remains in its present position, no direct rays of light from K could reach any part of the line *b c*.

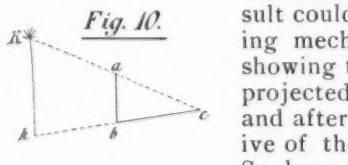


Fig. 10.

An almost equally simple case is that of the bracket projecting from a wall which is shown in Fig. 11, the only practical difference being that the point *k* has had to be ascertained upon the vertical surface of the wall instead of upon the horizontal surface of the floor.

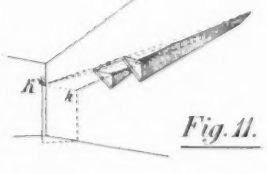


Fig. 11.

It will be obvious that the same result could be arrived at by first making mechanical elevations and plans showing the shadows as they would be projected upon the various surfaces, and afterwards setting out a perspective of the plane figure thus obtained. So long, however, as the shadows are thrown upon plane vertical or horizontal surfaces this operation would but

involve extra labor with no compensating gain; but it is quite another matter with inclined, and particularly with curved surfaces, where considerable eventual saving of trouble can usually be thus affected.

Sun shadows are, probably, more commonly required to be defined than fixed point shadows; but in treating these it must be remembered that the sun is so far distant from our planet that all rays of light from it which may fall upon any given picture may be considered, without appreciable error, to be parallel. Being so, they, of course, in a perspective representation, have a vanishing point, and when the sun is behind the picture plane it is easy to understand that this vanishing point must be in the location of the sun itself.

An example of this is shown in Fig. 12. In this, the point of sight is at A, and it is required to ascertain the shadow on the ground of the vertical post B C, when the sun is 40° to the right of the spectator, and at an angle of 60° above the horizon. Consequently an angle of 40° set from A to the right of the centre line of the picture gives the point P in the horizontal line vertically below the position of the sun, and to which vanish all horizontal lines tending in the sun's direction. Then by drawing P K at right angles to A P, and cutting it at K by a line drawn at an angle of 60° with A P, a section is made along the line A P and P K is ascertained to be the height of the representation of the sun above the horizontal line, which, swung round into a vertical position by compasses with leg fixed at P, locates the sun's representation at S. Now, by drawing a line from P through B, where the post enters the ground, and cutting this line by another drawn from S through C, which is the head of the post, the shadow of the post is found to be in the line B D.

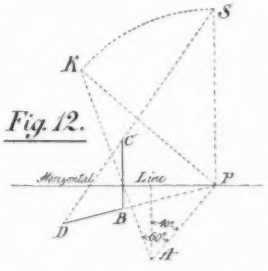


Fig. 12.

When the sun is on the near side of the picture plane, and the shadows are cast into and not out of the picture, the vanishing point of the sun's rays (which, let it be remembered, are considered as parallel) is found by continuing them beyond the picture plane, thus locating it as much below the horizontal line as the sun is above, and as much to right or left of spectator as the sun is to his left or right. This is exemplified in Fig. 13, where the same point of sight A is taken, the same horizontal line and the same post B C; only this time the sun is said to be 40° to the right of the spectator and having an angle of 60° with the horizon (just as before so far) and to be in front of the picture plane. In this case, therefore, the angle of 40° is set to the *left* instead of to the right, and after the height P K has been ascertained as before, it is swung round until the same distance P S is set vertically *downwards* from P, thus locating the vanishing point of the sun's rays at S. The shadow B D is now ascertained as before, by joining B P, and cutting this line at D by a line drawn from S through C.

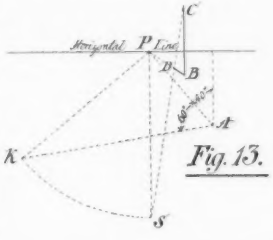


Fig. 13.

If a shadow from the sun has to be cast upon an inclined surface, such as a roof, the point P has to be ascertained in the vanishing line of the plane upon which the shadow is cast, the position of S remaining where it has already been located.

An example of this is given in Fig. 14. The house of which the perspective representation was obtained in Fig. 7 has had a roof added to it, with gabled ends, and sloped at an angle of 50° with the horizon. This has been done by obtaining the centre points, G and H, of each gable, by projection from the plan, in the same way as the other points were obtained in Fig. 7. Then, joining A to $V P_2$, drawing a line from $V P_2$ at right

angles to this line, and another at A at 60° to it, a section is made along the line from A to V P_3, and the point J where these intersect gives the height of the V P of all lines along the roof slope (at 50° with the horizon) of which the plans are parallel to the lines which vanish in V P_5. Erecting

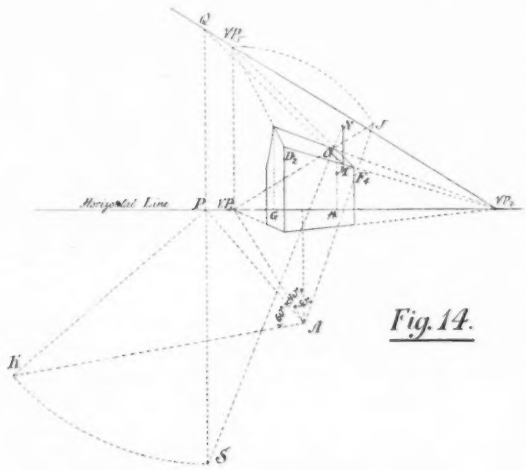


Fig. 14.

a vertical line from V P_3, putting one leg of the compass at V P_3 and opening the other to J, this height can be swung around into the vertical position, thus locating the new V P_5 where shown.

Drawing lines from D_2 and F_4 to V P_5 until the vertical lines from G and H are met respectively, the apices of the gables are determined, and the ridge line, connecting these, will be found, if produced, to vanish in V P_4, as it should do.

Now V P_5 being the vanishing point of all lines paralleled to the verges of the roof, is obviously a point in the vanishing line of all plans parallel to that in which the slope of the roof lies.

Similarly V P_4 being the vanishing point of all lines parallel to the ridge and eaves of the roof, is also a point in the vanishing line of all such plans.

Therefore this vanishing line can be drawn by joining V P_5 and V P_4.

The next thing to do is to locate the sun, which, being taken at 40° to the right of spectator and in front of the picture plane, and at an angle of elevation of 60° with the horizon, as in Fig. 13, is mere repetition of what was done then.

A pole, M N, has been erected from the point M in the eaves of the house, and its shadow upon the roof has to be determined. Now, its shadow lying upon the roof will vanish to some point in the vanishing line of the plane in which the roof lies, and also in some point in the vanishing line of vertical planes, tending towards the sun. This latter vanishing line is the vertical line through S and P, and the two vanishing lines in which the shadow necessarily lies meet therefore at Q, which thus of necessity becomes the vanishing point of the shadow.

Thus, joining M and Q and cutting this by the line from N to S, cutting M Q at O, the shadow of the pole M N is determined as M O.

Of course, the example taken is a simple one, but is of common occurrence, if the line M N is considered as the edge of a chimney stack instead of a post, while more complicated cases are of no greater difficulty, though to show such upon an explanatory diagram would probably only lead to multiplicity of lines without further elucidation of the problem.

Reflections, so long as the reflecting surface is horizontal, as is that of water, are exceedingly easy to lay down in perspective. In Fig. 15 there is given a section in which is shown the post B C, having itsperspective representation J F upon the picture plane, as consequently projected to A, the point of sight. H B is the surface of a sheet of water out of which the post rises and from which it is reflected—the point C being reflected at D, the angle of incidence C D B being there equal to the angle of reflection A D H. To obtain the perspective representation of the reflection it is therefore necessary to join A D, finding its location

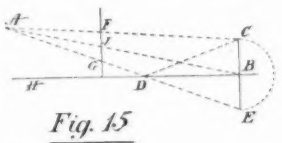


Fig. 15

on the picture plane at G, thus J G is the perspective representation of the reflection as J F is that of the post itself.

A little further argument will show that J G is exactly equal to J F; for if A D be continued downwards below the water till C B continued is met in E, then the angle B D E is equal to the angle B D C, and B E is consequently equal to B C—and if these be equal, J G and J F are equal also.

Thus, to ascertain the perspective of the reflection in water of any point which has already been itself ascertained in perspective, it is only necessary to discover a second point (which is necessarily vertically below the first, water having a horizontal surface) which gives the perspective of where a perpendicular from the first point infringes upon the plane of the water surface, and continue the vertical line thus found just so far again.

As an explanation is often more readily followed from an example than from verbal description, Fig. 16 is here inserted showing the reflection of the house already used in Fig. 14, as ascertained in this matter, there being supposed to be a river bank in front of the house, and the water level to be a little below that of the ground. As in the previous instances where this diagram has been used, all projections of eaves and verges have been omitted to render it less complicated; but it is in reality just regarding these things that it is most important to have a knowledge of the laws which govern the representation of reflections.

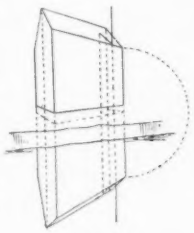


Fig. 16.

To deal with reflection from a vertical surface, such as that of a mirror, is generally more difficult, demanding something more than the mere use of a pair of compasses. Upon the whole the best way to set to work seems to be that shown in Fig. 17, at any rate it is the simplest and most readily understood. This is a plan, A, as usual, being the point of sight, while P Q S T is the picture plane, and B C the plan of the object to be shown in perspective together with its reflection from the vertical surface F G E D.

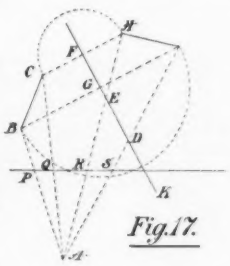


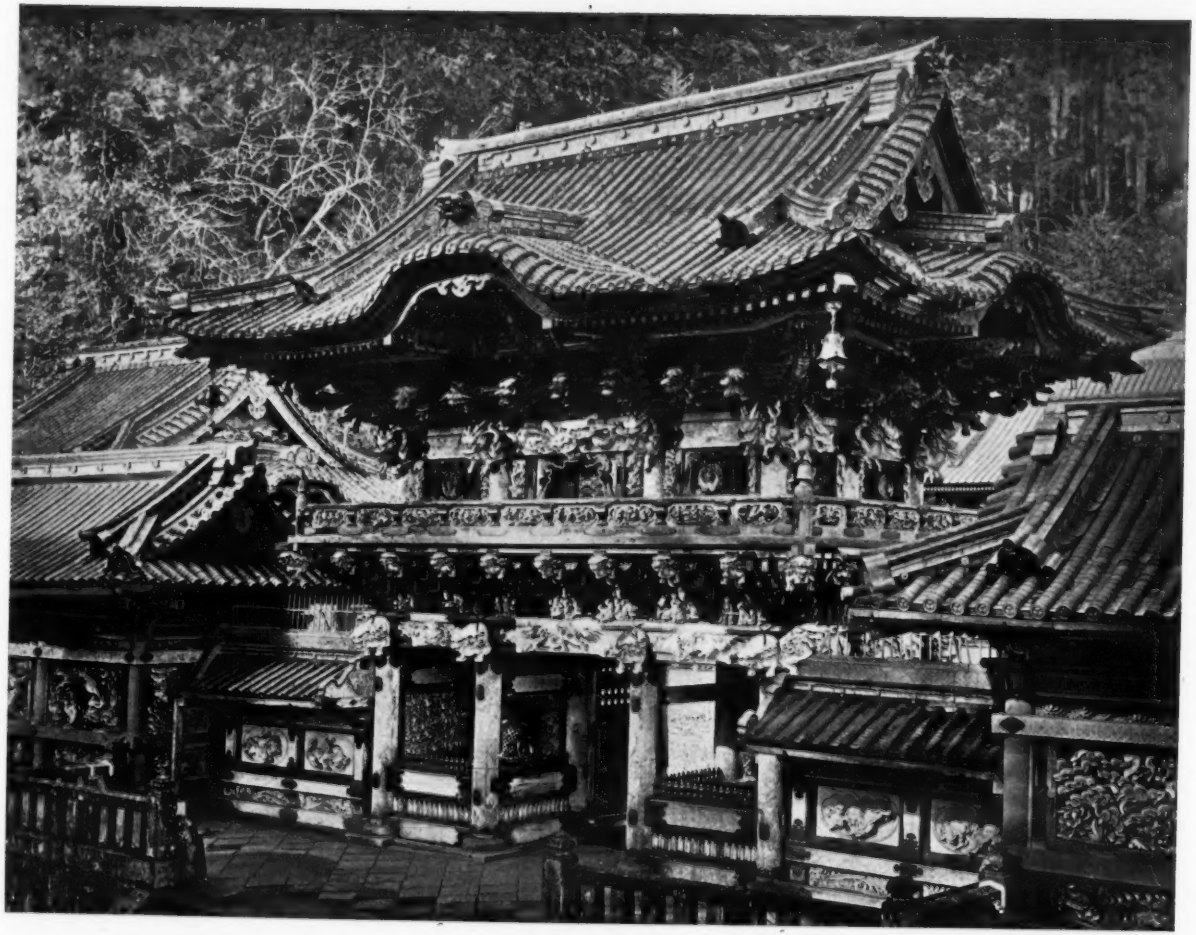
Fig. 17.

From B and C perpendiculars are dropped to F D, which they meet in F and G; and these lines, B G and C F, are then continued until G J is equal to B G, and F H to C F. The points J and H being now joined, a reversed plan of B C is thus obtained upon the further side of the reflecting surface. This reversed plan should now be projected on to the picture plane precisely as is the original object, when, the perspective representation of B C being at P Q, that of the reflection (or reversed plan) will be at S T.

That the representation of the reversed plan H A is the same as that of the reflected image E D is proved by the angles of incidence, C E F and B D F, being reflectively equal to the angles of reflection, A E K and A D K, the points E and D being those where the lines A H and A J cut the reflecting surface.

In conclusion, it may be once again pointed out that these hard and fast rules of perspective may be used for two purposes, viz.: for the production of a hard diagram of a building from given plans and elevations, or for the groundwork of an artistic drawing in which they have been softened and modified by taking other considerations into account. Considered for either purpose, however, a knowledge of them, full and accurate, is a necessity alike to the architect and the painter, if he would complete even a simple drawing without distortion.

G. A. T. Middleton



YOMEIMON.
FIG. IV.

JAPANESE ARCHITECTURE.*

HISTORY.

THE official records concerning Japanese architecture prior to 700 B. C. are so meagre, that little can be said authoritatively concerning its origin.

Nevertheless everything seems to point to that origin being a wooden one.

Thus the oldest chronicle, so far unearthed, tells how "Tsokina Hono-Mikkoto and his younger brother cut down trees and built themselves a *wooden* palace in the reign of Amatsu Hikodate-no-Mikkoto, and other records of somewhat later date treat the matter of house-building as though wood was the only material employed.

Before huts or houses were built at all, however, it is generally thought that the aboriginal inhabitants lived in *caves*. This surmise is based upon a legend of the Shinto mythology, which relates how Susano, having quarreled with his sister Ama-terasu, the Sun-Goddess, took revenge by breaking a hole in the roof of heaven and dropping upon her "a heavenly piebald horse which he had flayed with a backward flaying"; whereupon the Sun-Goddess much incensed retired to a *cave* and withdrew her light from the world for a season, until, thanks to the united efforts of the rest of the eight million deities, she was lured forth by stratagem, and the irrepressible Susano† was banished.

This retirement of Ama-terasu to a cave seems hardly sufficient to prove that the Japanese were once cave-dwellers; but it is one of the most important reasons in the eyes of the natives, and so it is here set down.

But whatever the origin of *prehistoric* architecture among the Japs, whether hut, cave or tent, certain it is that the native style‡ of to-day, as well as that of all *historical* times, has been a wooden one, and derived from the huts of the Ainos, or half-savage aboriginal race, whose descendants inhabit only the Island of Yezo.

This nation bears very much the same political relation to the Japanese that the North American Indians do to the people of the United States. In civilization, however, they have made even less advancement, save in politeness, and their dwellings of to-day are almost identical with those of 2,500 years ago.

These dwellings or huts in early times resembled a triangular prism, being built without vertical walls. They consisted of two pair of young trees with ends crossed and tied firmly at their intersections to a horizontal beam, or ridge-pole, by strong wistaria roots (*fugi*). The ends rested on the ground, and the whole was thatched with reeds or straw.

As time wore on this hut was used only as a roof, and vertical walls were added by means of uprights at the

† Susano means "the impetuous male deity."

‡ The expression native style is used here in contradistinction to the Buddhist style brought into the country by the Coreans.

* Continuation of "Eastern Asia, or China, Corea and Japan" in Vol. V., No. 3.

four corners and the middle of each side, the interspaces being filled in with coarse matting.

Reliable information concerning Japanese building art begins with reign of Jimmu Tenno, who ascended the throne in 660 B. C. and is believed to have been the first human ruler of Nippon, which had formerly been governed by Shinto Gods. During his reign an Imperial palace was built as well as a Shinto Shrine, and these gave the mode until about 201 A. D., when the Empress Dowager Jingo-Kogo, the Semiramis or Catherine of the Far East, donned male attire and conquered Corea.

From this time Corea became to Japan what Greece was to Rome both in science and in art; but its real influence did not begin 522 A. D., when Buddhism was first introduced into the country.

From that date began the great fusion not only of the Buddhist religion with the Shinto cult, but also of the Buddhist architecture with the Japanese native style, which mingling continued moderately active until the end of the sixth century.

The Buddhist class of building had been learned by the Coreans from the Chinese, who in turn had derived it to a certain extent from Burmah. But the successive modifications to which it was exposed, instead of injuring it, only added power and beauty until (as previously hinted*) the Buddhist style of Eastern Asia reached its climax in the land of the Mikado.

During the early part of the seventh century a perfect furor for everything Corean swept over the land, and artists, architects, artisans, workers in metal and textile fabrics, wood carvers and ceramic experts from the Hermit Kingdom swarmed over the Empire. But in the period from 673 to 689 A. D. under the Emperor Temmu, a pause ensued, in which importation ceased, and assimilation set in.

Architectural features, which had entered the country, uncompromisingly Chinese or Corean in character, lost their original appearance, and being assimilated, took on a refinement and elegance quite new and entirely their own. Hida-no-Takumi introduced symmetry, and a steady advancement toward purity of taste followed. This continued with slight interruptions until 1616 A. D., when the climax was reached in the temples of Shiba and the Tokugawa at Nikko, the masterpieces of Japan.

Since 1870 the inroad of Europeans and Western travelers has begun to tell architecturally upon the "Land of the Rising Sun," by introducing what is locally called the "foreign style," doubtless (as someone has remarked) "because foreign to all known styles of architecture." But as Mr. Chamberlain puts it: "We cannot with any grace blame a nation whom we ourselves have misled"; and "if Japan's contemporary efforts in architecture are worse even than ours, it is chiefly because her people have less money to dispose of."

DOMESTIC DWELLINGS.

Japanese buildings may be broadly divided into domestic dwellings, palaces, castles, Yashiki and Ecclesiastical edifices.

Of these, domestic dwellings are the simplest, being derived directly from the hut of the Aino, and consist for the most part of vertical beams (resting upon stones) morticed to horizontal beams, and carrying a heavy roof, thatched, shingled or tiled. As a rule, there are no permanent walls, the sides being composed in winter of *amado* or wooden sliding screens, capable of being folded up and packed away, and in summer of shoji or oiled paper slides, translucent but not transparent. Thus in warm weather all the sides of the house may be removed and the whole thrown open to air and ventilation.

Houses of the better class have both wooden and oiled paper slides all the year round, the former being used at night, the latter by day. The intermediate space is employed as a verandah or vestibule called *genka*.

No permanent partitions cut up the interior; but paper screens sliding in grooves divide the space according to the number of rooms required.

*See article in previous number.

If a house has a second floor, it generally covers only a portion of the lower story and is reached by a flight of very steep steps. The most striking feature of all Japanese interiors, to the average foreigner, is the total absence of furniture. Neither tables, chairs, beds or wash-stands appear; the reason being that the first two are scarcely ever used, that the *futan* or bed consists of a thick, soft quilt which is always rolled up and stowed away in a cupboard during the day, while the wash-stand is almost superfluous in a country where the commonest laborer often takes five baths a day, and would die of shame if he bathed less than three times daily. Ewers, it is true, are used for the hands and head (if there is no time for a whole bath), but like the bed are concealed in a cupboard, so that the general appearance of a bedroom is somewhat bare.

To counterbalance the lack of furniture, however, it is only fair to say that all the interior wood-work is exquisitely grained, and the floors are either finely polished or beautifully lacquered, that soft silken cushions supply the need of chairs and that *ramma* or carved ornamental friezes, recalling the work of Squarcione of Padua, give a refined finish to the whole.

In every house an alcove is built as a seat for the Mikado should he ever deign to visit it. Such a visit naturally does not occur in more than one case out of a million; but the alcove nevertheless is always built, and in it is placed a rare bit of pottery or a painted screen, which is usually the one ornamental feature in the room. This one adornment is changed by the owner every day when he can afford such a luxury; but the mass of his treasures are kept out of sight in a fire-proof building at the back, known as *a godown*,* for it is considered the height of vulgarity to spread one's valuables about the room as we do, and (if I may borrow a simile) as much as to say, "look what a lot of expensive articles I've got; just look how jolly rich I am!"

In this respect as well as in many others all Western nations might learn from this plucky little people of the East, who never mistake extravagance for greatness, nor ostentation for beauty.

* Godown, from the Malay word gadong—a warehouse.

PALACES.

A palace, as understood by the Japanese, means not only the home of the Mikado but also a garden filled with the residences of the *kuge* or court nobles, and surrounded by a high roofed wall.

This garden is usually of large extent, as in *Kioto*, where it covers twenty-six acres; but the multiplicity of approaches and enclosures one within the other, so popular in Corean palaces, are here wanting, an arrangement limited for the most part in Japan to ecclesiastical buildings.

In old days the residence or palace of the Mikado consisted of a simple domestic dwelling of the kind just described, thatched with straw, and but little superior in decoration to that of the humblest villager; for the Emperor, being of divine origin, needed no earthly pomp and circumstance to give him dignity in the eyes of his subjects. In later years the examples of luxurious living set by the Shoguns have had their effect, so that in the present day the Mikado's palaces are quite elaborate in extent and decorations. In construction they resemble the domestic dwellings described above, save that they contain more permanent walls and are usually surmounted by roofs of a more elaborate type. As regards decoration, they have borrowed from the resources of the church, and many beautiful forms of ornament such as adorn Buddhist temples find their way into the abodes sacred only to royalty.

The screens between the rooms are of silk, painted with wild geese, chrysanthemums, Chinese saints and ladies who were not saints; or they are embroidered with exquisite copies of old masters like Cho Densu, the Fra Angelico of Japan or Mitsunobu and Mitsushige of the Tosa school. The friezes are gems of glyptic art and are often (as in the Nijo Palace) from the hand of Hidari Jingoro, the Pheidias of

Japan; while the ceilings (handsomely coffered in black lacquer with gold enrichments) dispute the prestige of beauty with the rest.

In the new palace at Tokio, the *shoji* or sliding screens are of plate glass, which is undoubtedly a mistake in a land so prone to earthquakes; and the furniture, having been manufactured in Germany, seems out of place in its Eastern home. But the walls are hung with rich brocade exquisitely woven, and the three million dollars lavished upon the palace seems on the whole to have been well expended.

CASTLES.

The palaces of Nijo and Tokio partake so much of the fortress or military character in their foundations as almost to warrant being called castles; but a number of buildings in Japan still exist in perfect preservation which may more properly claim the title of castle, and which belong both in time and in construction to the feudal type.

The castles are lofty, dignified wooden structures, capable of accommodating a number of men at arms, and of resisting spears and arrows, and are proportioned to obtain a certain grandeur and harmony.

Each story is placed a little within the one below the projecting portion being roofed with tiles (a fashion imported in the eleventh century). Dignity and an appearance of height are gained by carrying up a stone embankment; which in mediæval times alone afforded sufficient protection from civil disturbances.

The facing of this embankment* is of coursed rubble, quarried in hugh lumps and fitted without cement, and the corners have a parabolic curve outward, which lends an air of Norman solidity to the whole.

Most of the castles now extant date from the sixteenth century, though some have been completed at a somewhat later period, such as the Castle of *Nagoya* (Fig. III.), built about 1610 by twenty feudal lords for the son of Iyeyasu, and held to be the finest example in Japan.

YASHIKI OR HOMES OF THE TERRITORIAL NOBILITY.

The *Yashiki* or *spread-out house* is a form of building which found much favor in the days of feudalism, but which is now fast dying out. It is said to have been an evolution from the military encampments of early days, in which the general's pavilion stood high among its fellows, and was surrounded on all sides (at a respectful distance) by the tents of those of lower degree.

The noun *Yashiki* is collective. It stands for a hollow square often enclosing some hundred thousand square feet, lined with barracks of the soldiery, and bounding beautiful gardens interspersed with silvery fish ponds filled with fat carp.

Among these accessories of luxury rise the residences of the Daimio and his ministers. The whole is girt about by a roofed wall of mud plaster and tiles set high upon an embankment of masonry, and outside runs a broad, deep moat affording a home to the hardy lotus as well as countless herons, swans, ducks, geese and storks.

A huge roofed gate-way gives access to the enclosure, and here all save those of the very highest rank, like the Abbot of Zozoji, must descend from their palanquins, rickishas or other conveyances before approaching his lordship's abode. The residence itself differs but little from the palaces and castles just described; but the barracks have a certain individuality, and it is to these that foreigners usually refer when they employ the word *Yashiki*. They consist of long rows of two-storied buildings with projecting caves, barred windows, hanging bays, tiled roofs and stone foundations; and they frequently form a part of the wall of circumvallation. The doorways are splendidly adorned with nail-heads, heavy bolts and iron straps; but these are employed only to give an air of

* NOTE—In the stone embankment of the Castle *Osaka*, erected by Hideyoshi in 1583, several single blocks measure from thirty to thirty-six feet in length and fifteen in height.

solidity to the structure, which quality, alas, is sadly lacking in reality, the straps, etc., being for the most part wrought in sheet copper.

Both within and without the wood is left unpainted, showing the exquisite graining of the camphor tree, which resembles fine watered-silk. This elegance and simplicity of treatment not only wins its own mead of admiration; but by contrast greatly enhances the splendor of the Diamio's palace with its gorgeous enrichments of lacquer and gold.

Most of the old Yashiki have been partially torn down and converted into shops, but the great tiled roofs with their projecting eaves, ridges, and hip ornaments, the windows grilled with heavy wooden bars, and the doorways with their metal clasps still remain and silently testify to the feudal origin of these peaceful emporiums.

In the old books *Yashiki* are often referred to as *Miya*, the origin of which name gave rise at one time to much discussion; but it has now been definitely decided that the first *Yashiki* or *Miya* ever built was occupied by Jimmu Tenno in Kashiwara-no-Miya,* which fact is believed to fix not only the origin of the word, but also the approximate date of the first building of the kind, which was about 610 B. C.

ECCLESIASTICAL ARCHITECTURE.

All the ecclesiastical buildings in Japan may be divided into two distinct styles, namely, Shinto* and Buddhist.

Shinto temples are simply developments of the primeval hut or the domestic homes of the Ainos in Yezo; while Buddhist temples are evolutions of Corean architecture on Japanese soil.

The purest specimens of Shinto temples are built of plain white pine, surmounted by thatched roofs. In them the coarse matting, forming the sides of the Aino hut, have given place to ordinary boarding, the earthen floor to a raised wooden one surrounded by a verandah, and the rough logs used anciently as weights upon the *Munaosae* or "roof-presser" (a beam to hold the thatch in place) are represented by cigar-shaped pieces of timber neatly turned. At either end of the roof the rafters project so as to form a letter X above the ridge-pole. This treatment always stamps a temple as belonging to the Shinto faith, a fact farther emphasized by the presence of a *torii*, a sort of Japanese propylaea consisting of two columns, a lintel with projecting ends, and a tie-beam; a form of gateway always standing before temple enclosures devoted to the Shinto cult.

The *Torii* (as the name implies)* was used in old-times as a bird-rest, whereon perched fowls offered to the shrine; but offerings of this kind having fallen into disuse, it now only serves the purpose of an *arc-de-triomphe* like the Red-Arrow-Gates of Corea.

Types of isolated temples like that above described are every day becoming rarer in Japan, the introduction of Buddhism having affected the architecture even of the rival faith.

Thus the average Shinto temple is no longer a single building preceded by a *torii*, but a collection of buildings. (Fig. IV.)

The kind of temple above mentioned is still retained as the *Honden* or Main Shrine and remains exactly the same *internally*, with its oratory and holy of holies, where the sacred mirror, sword and emblem of the God are preserved; but *externally* a certain amount of carving appears, a number of roofed fences enclose it, and a series of approaches lend it the same dignity and aspect as the official residences of high dignitaries in Corea. Besides these there are secondary shrines scattered about the grounds, as temple offices, a theatre for sacred dances, a library, a treasure-house, an assembly-hall, a stable for the sacred white pony, and a number of other buildings, all of

NOTE—*Shinto* is a Chinese word meaning "the Way of Gods," and is used in contradistinction to *Butsudo* or the "Way of Buddha." But though the word *Shinto* was not used in Japan until after the introduction of Buddhism, the faith which it represents was the indigenous religion of the country and is to day the National Creed. It is a combination of nature-worship, hero-worship and ancestor-worship, and numbers eighty myriad deities in its calendar. Its moral teaching is usually summed up in the words "Follow your impulses and obey the Mikado," and as a faith it is practised in its greatest purity in the province of Satsuma.

*Torii from tori meaning a fowl.

FIG I. TEMPLE OF SHIBI.

FIG. III. PALACE OF NAGOYA.

which may be seen in the great temples of Ize or Izumo (Fig. IV.)

Since 1868, when Shintoism was reinstalled as the state religion, a certain effort at enrichment has been essayed; but the Shrines of Ize and Izumo still stand as the most complete examples in evolution of the native style and are certainly free from the crimes of creation which contact with Europeans has lately caused to be conceived.

THE BUDDHIST TEMPLES.

Buddhism unlike Shintoism has no hereditary or traditional law to bind it to simplicity save the law of good taste. And this latter faculty has always been so inherent in every Japanese that few excesses have as yet been perpetrated. In the Buddhist temple one sees not only a marvellous artistic instinct for grouping and color, but a still more wonever is imported from China or Corea becomes recreated the moment it passes through the refining alembic of the Japanese mind, and in no case has this purifying process been exerted more successfully than in Buddhist temples.

To judge one of these temples, however, one must lay aside previous prejudice, and look at them rather from the painter's standpoint than from the architect's point of view. For the Japanese *are essentially impressionists in art*, and like all impressionists their power lies more in color effects than in form and outline. Hence a temple is never designed as an isolated object, but always as a feature of the surrounding landscape, and thus appears more like great splashes of crimson, lacquer and gold down a mountain side than a symmetrical distribution of columns, windows and wall spaces. If the background is such as to require a still higher note of color, a gateway or supplementary building is generally enameled over with a luminous white.

Nothwithstanding this splendor of conception, however, which uses the whole landscape as a canvas, it is in detail that the Japanese most excels; for if he conceives like a giant, he invariably finishes like a jeweler.

The first building in a Buddhist Shrine which asserts itself is the "Sammon" or two-storied gateway, resembling in the distribution of its upper story the "gates of extensive wisdom," etc., in the noble official residences of Corea. The framing of the *lower story*, however, is arranged so as to form niches, in which stand the God of Thunder and Wind deity, the face of one being always painted a livid green, that of the other a deep vermillion, as though congested.

The roof, as in all gateways of Eastern Asia, is the most artistic feature, having broad overhanging eaves festooned in the centre and bent upward and backward at the corners, thereby disclosing a vision of complicated corbelling. Tiles are the most popular form of covering employed, though copper embossed with armorial crests has been much used since the seventeenth century.

Passing through the *sammon* the visitor or worshipper finds himself in the first terraced court only to encounter another gateway, more imposing than the last, leading to a second court, and so on to a third, until by traversing terrace after terrace he at last reaches the Oratory and Chapel. These courtyards are usually filled with all the concomitant buildings of the Buddhist cult, as well as with a number of bronze and stone lanterns presented by the *Daimios* in token of repentance for past sins.

Belfries, priests' apartments, a *rinzo* or revolving library, a kitchen, a treasure-house, a pavilion containing the holy water cistern and pagodas rise on either hand throughout, all crowned with festooned roofs, and clothed in crimson lacquer laid over the finest silk instead of cloth, as in the case with the valuable curios of Echizen.

Among the most imposing of these supplementary buildings are the Gojinno-to or pagodas, which are invariably square like those of Corea. Within each stands what at first sight appears to be a column passing through the centre as a support; a careful examina

tion, however, shows it to be no column at all, but a heavy beam hung from the apex of the roof like the tongue of a bell, so that in case of typhoons or earthquakes the centre of gravity is automatically altered according to the deflection of the building from the vertical, thereby preserving the whole in equilibrium.

Externally the pagoda is usually designed in five or seven stories, each set a little within the one below, and girt about with balconies and overhanging eaves as in China. The whole is usually lacquered in dull red save the lowest story, in which a bewildering mass of painted carving distracts the eye, and high above all a twisted spire of bronze forms the culmination.

Pagodas are not held in quite the same esteem in Japan as in China, being valued for their ornamental qualities rather than as sacred retreats for private prayers. The latter as well as all religious services are generally held in the Oratory which, with the sanctuary or chapel, forms the temple proper. Before the courtyard of this Oratory stands a two-storied gate resembling the *sammon* above described, save that it is more elaborately sculptured. The extent to which this ornamentation may be carried is best seen in the *gateway* before the Mausoleum of Iyeyasu in Nikko (see Fig. II.), which exhibits the climax of sculptural elaboration even in Japan.

With such a sumptuous gateway the occidental mind naturally expects, nay, insists upon, a still greater crescendo of ornamentation in the temple to which it gives access; but here the

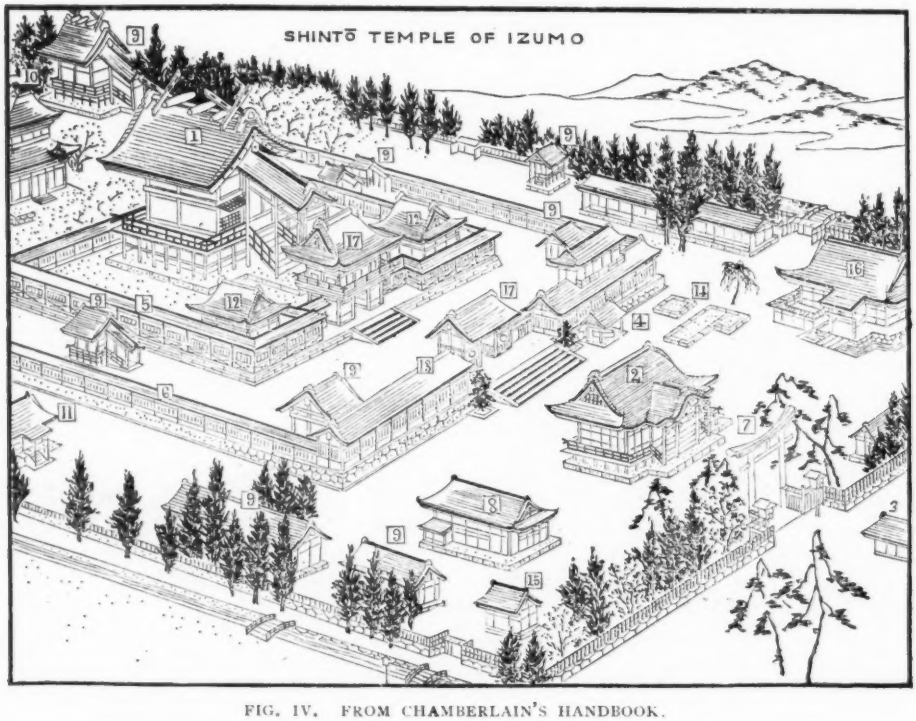


FIG. IV. FROM CHAMBERLAIN'S HANDBOOK.

1 The *Honden* or Main Shrine
2 The *Haiden* or Oratory
3 The *Ai-no-ma* or Corridor
4 The *Mitarashi* or Cistern for Purification before Prayer
5 The *Tama-gaki* (Lit Jewel Hedge) a wall enclosing the principal buildings
6 The *Ita gaki* or Board Hedge
7 The *Torii*
8 The *Shamusho* or Temple Office
9 The *Sesshа* or Secondary Shrines
10 The *Bunko* or Library
11 The *Hozo* or Treasure House
12 Places for Offerings
13 The *Kwairo* or Gallery
14 The *Kagura-do* or Dancing Stage
15 Stable for the Sacred Horse
16 Assemby Hall
17 Gates

FIG. II.—IYEYASU TORII, OR GATE.

Corean influence again asserts itself, and the shrine, externally, is left comparatively simple. Like the domestic buildings of the better class, it is provided with a verandah and columns shaded by a gabled roof; and boasts a bracketted cornice in common with other ecclesiastical architecture; but though the wall spaces are covered with lacquer, the carving is used somewhat sparingly, in comparison with the gateway, and thus the temple acquires an added charm of dignified simplicity.

The real purpose of this simplicity, however, is to emphasize through contrast the splendor of the interior, the dwelling place of *Amida*, the ideal of boundless light. Thus the sanctuary containing the image of the God is as magnificent as painting, sculpture, lacquer and precious metals can make it; and the *haiden* or oratory preceding it is hardly less imposing.

The finest of these oratories in Japan is that of the temple *Iyeyasu* at *Nikko*, which though lately converted by a decree of the Mikado into a Shinto place-of-worship, is still essentially Buddhist in all architectural distribution, decoration and detail.

Gold is the neutral of the walls, on which *Kirin* painted by Motonobu, the Raphael of Japan, perform graceful gambols. Two bands of inlay and two of open-work carving form the frieze, which is pierced at intervals by columns gold-lacquered and capped with embossed bronze. Japanese brackets support a coved and coffered ceiling, with dragons, magnificently involved, posing in each compartment on a blue ground; and the whole room is reflected like a monochrome in the black floor of polished lacquer.

Soft silk-bordered mats, about six feet by three, protect the floor on ordinary occasions, and by their number declare the size of the room, for the mat is the unit of square-measure in Japanese architecture, it being customary to speak of a room of six, eight or four *mats* according to its square contents.

Such in brief is the architecture of Nippon.

From the purely classic point of view, in which form and outline play so important a part, it may not rank very high in the scale; but to the eye of the Oriental it fulfils all that is required.

The roofs are certainly as graceful in curve and sweep as any in the world, and as regards color effects, the temples of Shiba and Nikko stand pre-eminent throughout the East. Besides the Japanese never mistake *bigness* for *greatness*, nor *ostentation* for *splendor*, and throughout their designs exhibit that exquisite refinement and reserve which contribute so much to the beauty of the "white ideals" of Greece.

C. T. Mathews, F. A. I. A.

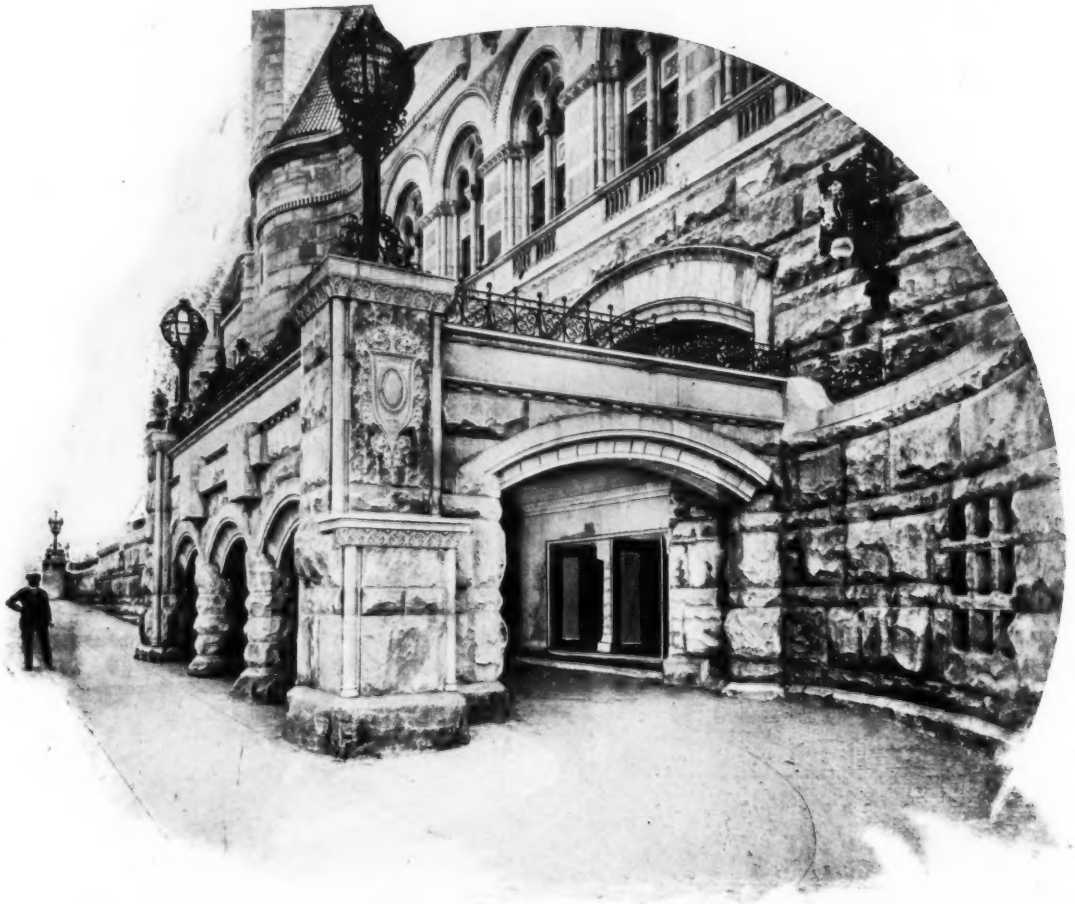
EXAMPLES

OF

ARCHITECTURE

IN

ST. LOUIS



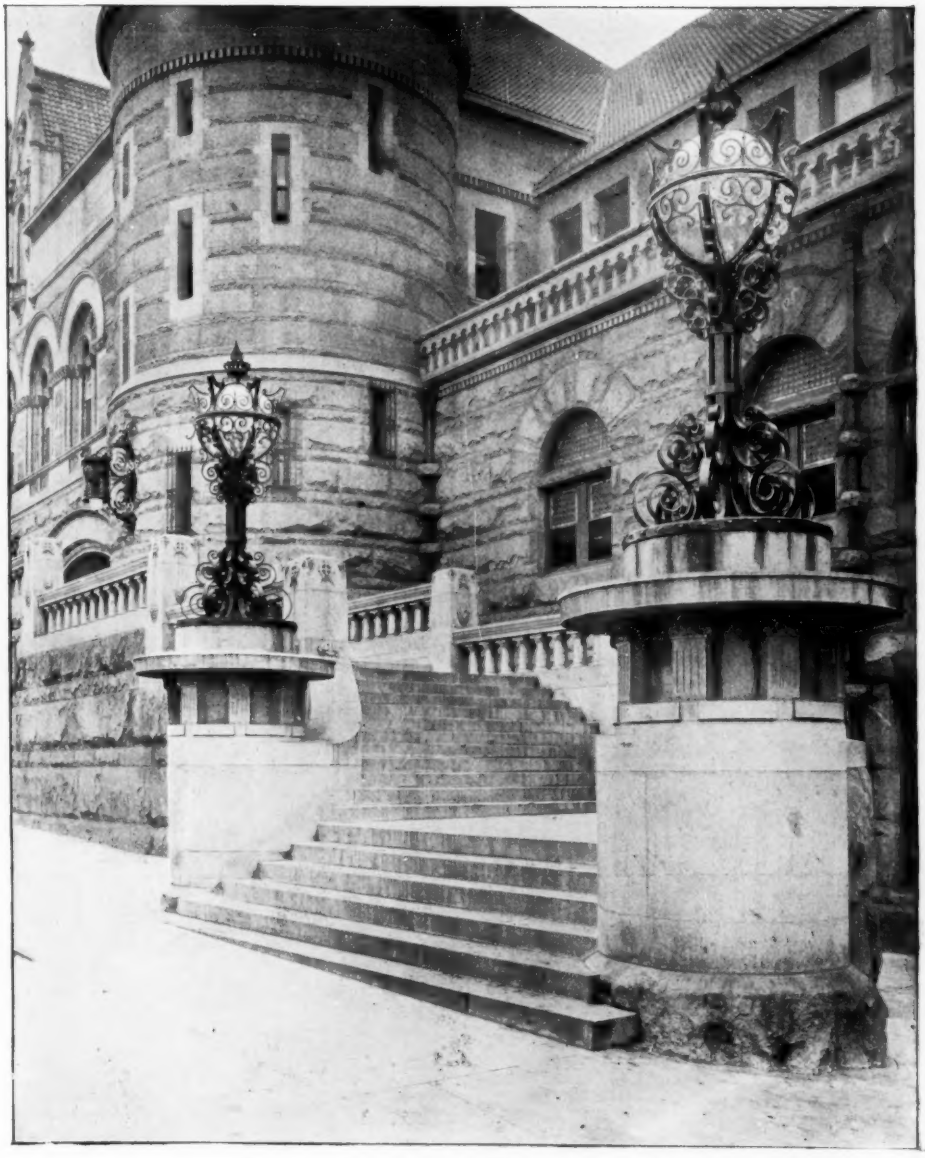
St. Louis, Mo. DRIVEWAY ENTRANCE, UNION STATION. Theo. C. Link, F. A. I. A , Architect.

THE WEST APPROACH—UNION STATION.

St. Louis, Mo. Theo. C. Link, F. A. I. A., Architect.

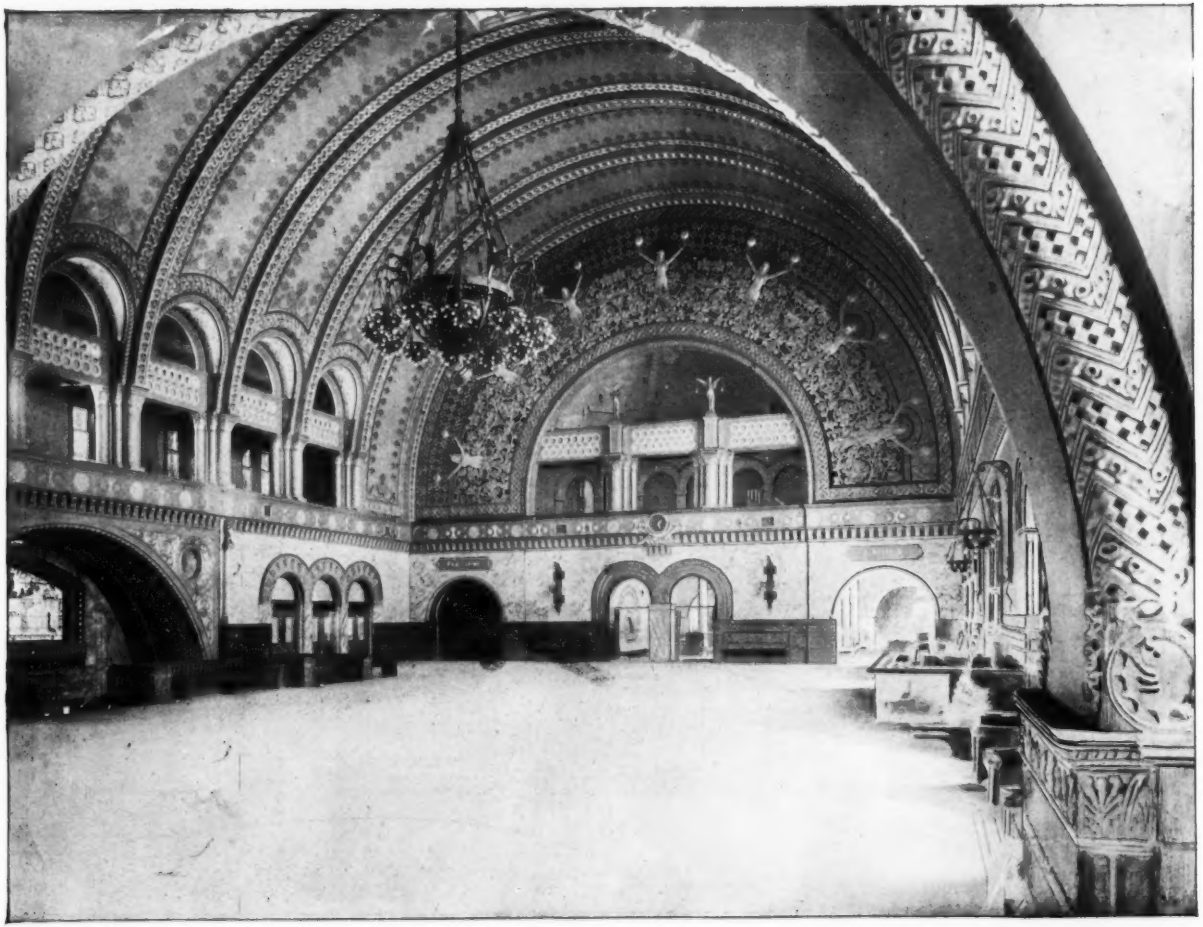
THE EAST APPROACH—UNION STATION.

St. Louis, Mo. Theo. C Link, F. A. I A., Architect.

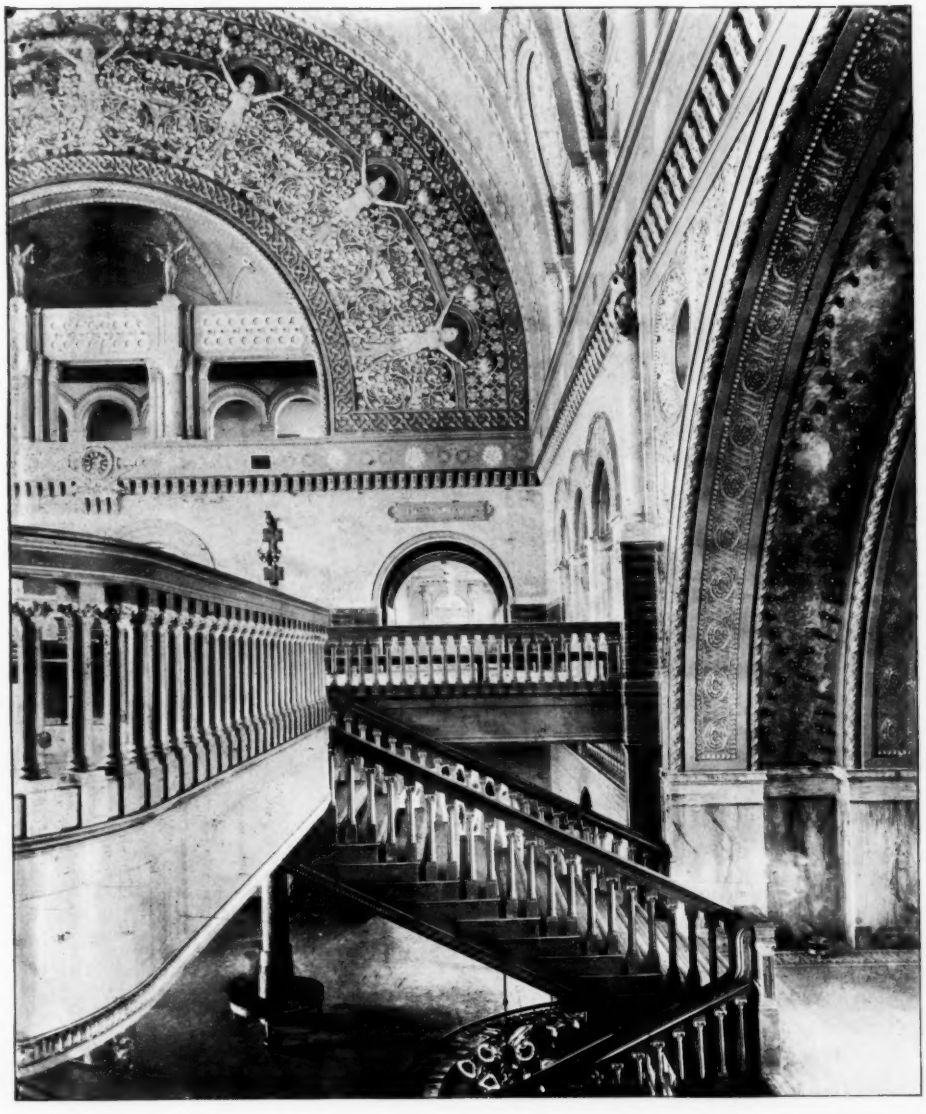


VIEW OF EAST APPROACH—UNION STATION.

St. Louis, Mo. Theo. C. Link, F. A. I. A., Architect.



St. Louis, Mo. GRAND HALL, LOOKING EAST—UNION STATION. Theo. C. Link, F. A. I. A., Architect.



GRAND STAIRCASE, BETWEEN THE WAITING-ROOM AND THE GRAND HALL—UNION STATION.
St. Louis, Mo. Theo. C. Link, F. A. I. A., Architect.

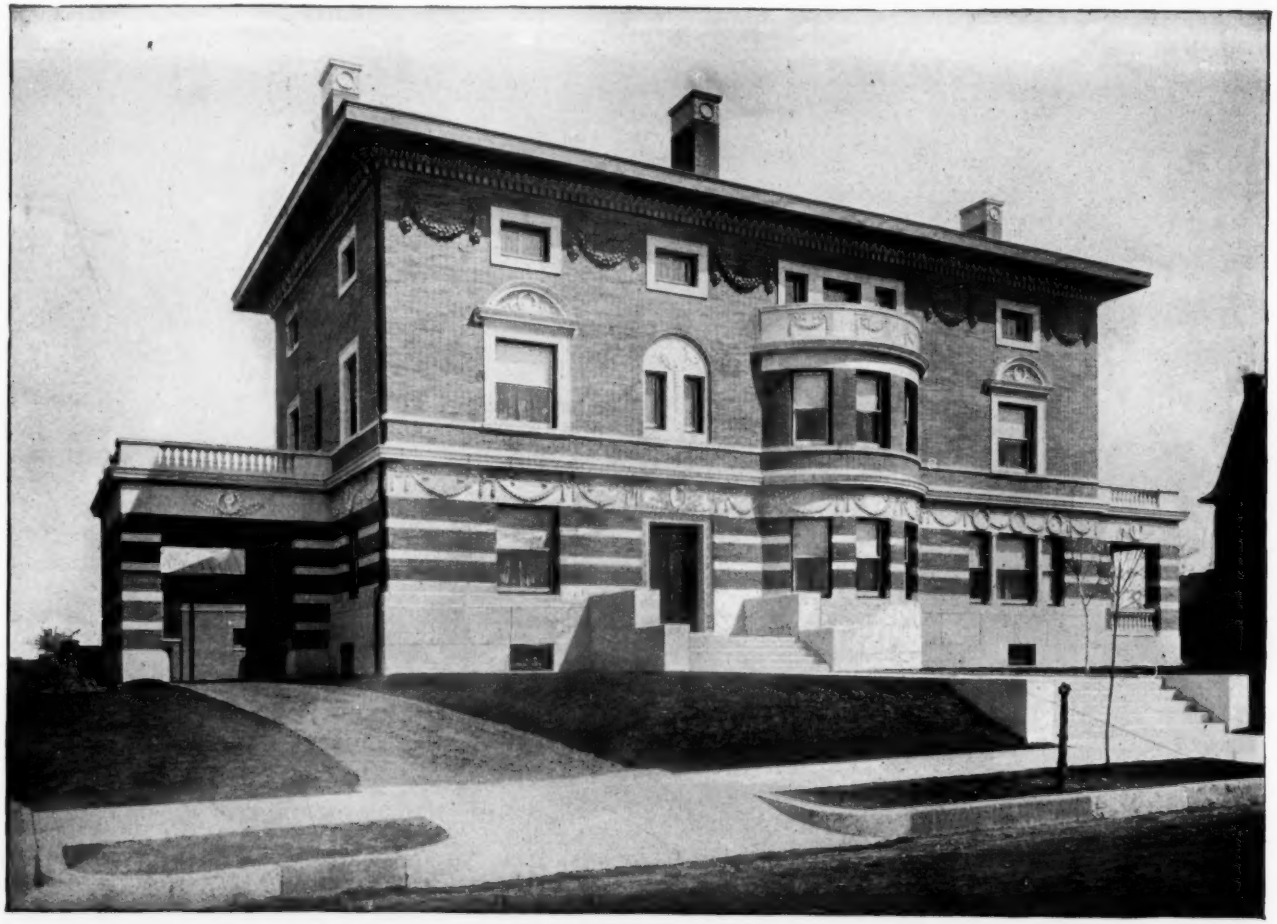
St. Louis, Mo. THE GOLDEN ARCH—UNION STATION. Theo. C. Link, F. A. I. A., Architect.

St. Louis, Mo. RIALTO BUILDING. Isaac Taylor, Architect.

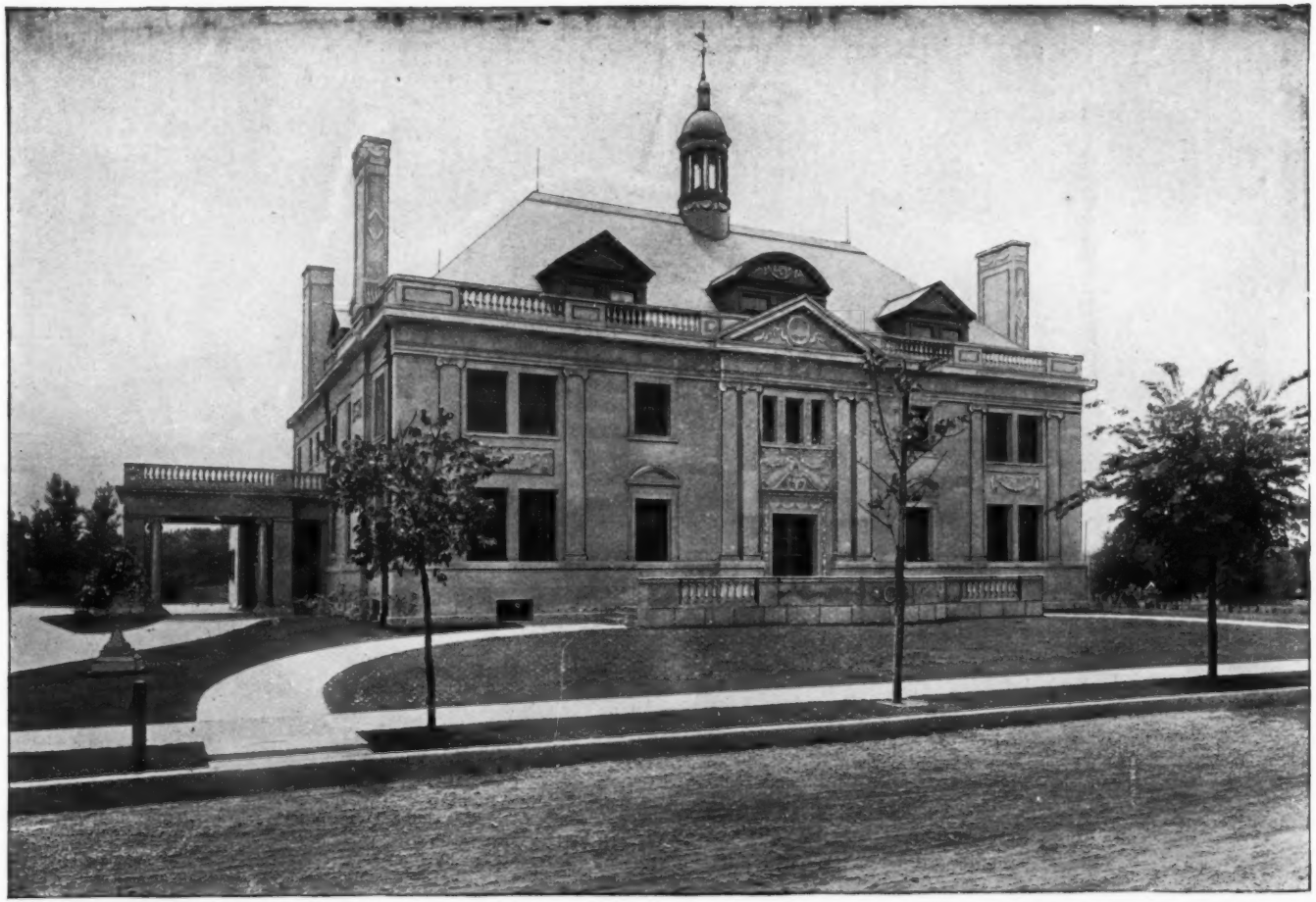
St. Louis, Mo. MERCANTILE CLUB. Isaac Taylor, Architect.

St. Louis, Mo PLANTERS' HOTEL. Isaac Taylor, Architect.

St. Louis, Mo. HALLWAY IN ST. NICHOLAS HOTEL. Adler & Sullivan, Architects.



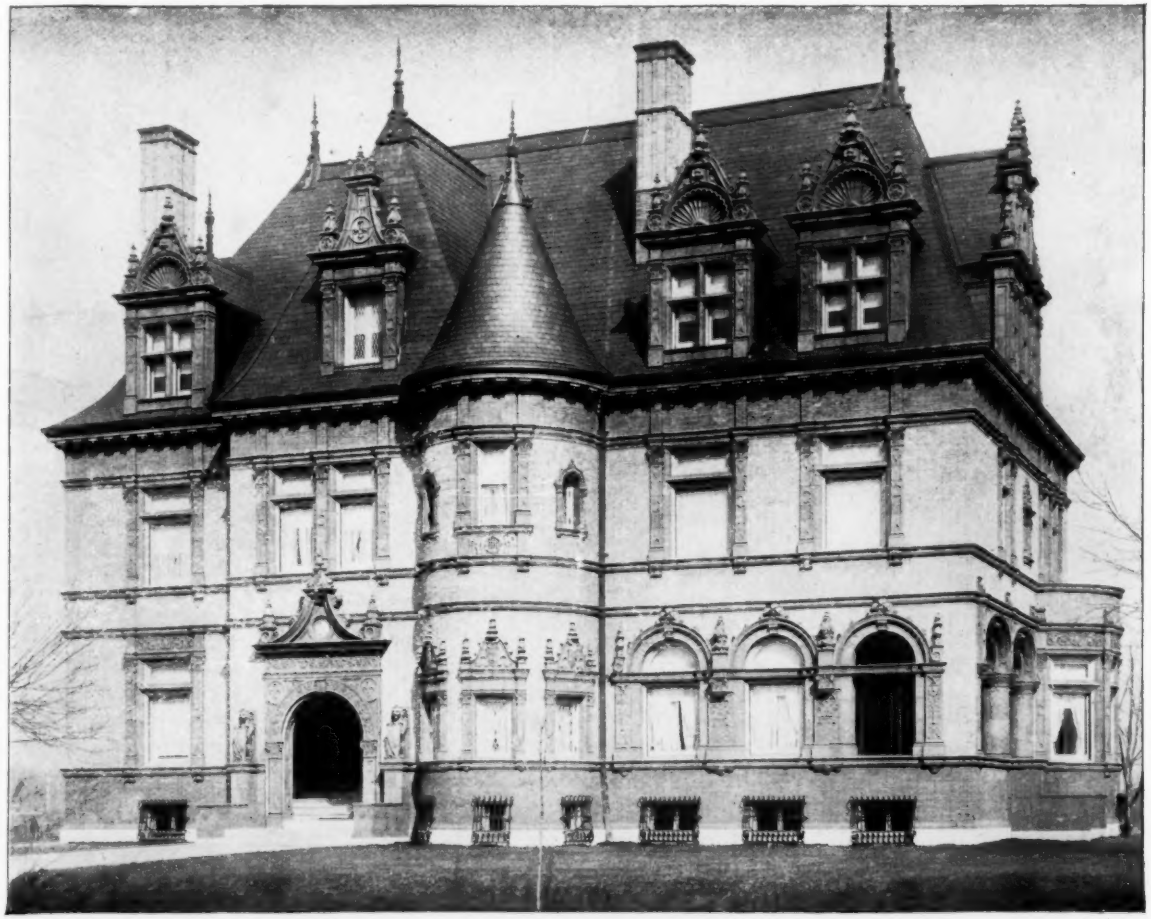
St. Louis, Mo. RESIDENCE OF WM. H. THORNBURG, ESQ. Eames & Young, Architects.



St. Louis, Mo

RESIDENCE OF GEORGE L. ALLEN, ESQ

Eames & Young, Architects.



St. Louis, Mo. SOUTHEAST VIEW, RESIDENCE W. K. BIXBY, ESQ. W. Albert Swasey, Architect.

St. Louis, Mo. RECEPTION HALL—RESIDENCE OF W. K. BIXBY, ESQ. W. Albert Swasey, Architect.

St. Louis, Mo

RESIDENCE OF E. A. DE WOLF, ESQ.

Eames & Young, Architects.

St. Louis, Mo. MANTEL IN LIBRARY—RESIDENCE OF S. M. KENNARD, ESQ. W. Albert Swasey, Architect.

SPANDRIL, FIDELITY BUILDING.

CYRUS L. W. EIDLITZ.

CYRUS L. W. EIDLITZ, the son of Leopold Eidlitz, architect, was born in 1853, in the house at the foot of West Eighty-sixth street, New York, which his father had built a few years before and still occupies. It was built in what was almost a wilderness and it now fronts the Riverside Drive. The younger Eidlitz was destined from the first to the profession of architecture, and at the age of twelve was sent abroad for his education. For three years he attended a school in Geneva, and was then entered at the Royal Polytechnic School in Stuttgart in the Department of Architecture, in which Dr. Wilhelm Lübke was one of his professors. In 1871 he returned to New York and entered his father's office as a draughtsman. His first independent work was the rebuilding in 1878 of St. Peter's Church in Westchester, a church originally built by his father some thirty years before, of which the exterior had been damaged, and the interior destroyed by fire. This church was almost immediately followed by the building of a railway station in Detroit, which led to the employment of its architect to design the much more costly and important Dearborn Station in Chicago, completed in 1885. The work, however, which Mr. Eidlitz made himself well known beyond as well as within the limits of his own profession and took rank as one of the leading American architects was the building for the Buffalo Library. In 1884 he was successful in a competition in which some very leading architects, among them Richardson, took part, and the success of the building itself, completed in 1887, insured his professional standing. This work was followed by the Metropolitan Telephone Building in Cortlandt street, and among the conspicuous buildings since erected in New York from his designs are the telephone buildings in Broad street and the Western Electric Building in Greenwich street, the building of the Fidelity and Casualty Company in Cedar street, the Racquet Club in West Forty-third street, the Bank for Savings in Fourth avenue and the building of the Bar Association in Forty-third and Forty-fourth streets.

Heredity must be allowed to count for something, and Mr. Cyrus Eidlitz began his work under very fortunate auspices. At the beginning of his pro-

RESIDENCE OF LEOPOLD EIDLITZ.
Riverside Drive, and 86th Street, built 1851.

TRIPLE CAPITAL—RACQUET CLUB.

fessional career he found himself already the inheritor of an excellent architectural tradition. Nobody who is intelligently interested in the progress of architecture in America can fail to be grateful for the contributions to its development that have been made by Leopold Eidlitz. He was employed as a draughtsman in the production of the designs for Trinity Church, which remains the most admirable church in New York, and which was the beginning in this country of the Gothic revival. As one of the pioneers of this movement, who worked under discouragements not easily conceivable to their successors, he produced a series of works in which was visible not merely a capricious preference for mediæval over classic architectural forms, but a rationalization of architectural form in general, that it should express and conform to the mechanical facts of structure, and the works which manifest this purpose manifest also a powerful artistic individuality. The author of the old Produce Exchange, of the Brooklyn Academy of Music, St. George's Church, the Temple Emanu-El, and above all, of the Assembly Chamber and the Senate staircase in the Capitol at Albany, issure of an honorable place in the history of American architecture. Perhaps this is not the place for the present writer to record his personal obligations for the teaching by precept of the architect who has taught his art by these examples. But he cannot refrain from applying to Mr. Leopold Eidlitz in respect of architecture what Fox said of Burke in respect of political knowledge, that "if he were to put into one scale all that he had learned from books, and from other men, and in the other all that he had learned from the conversation and instruction of his right honorable friend he should be at a loss to which to assign the preference."

It was under these influences that Mr. Cyrus Eidlitz began his professional work, which from the first bears testimony to them. The interior of St. Peter's, Westchester, is so interesting that it is to be regretted it cannot be illustrated. It is a rather lofty nave of four bays, an apsidal chancel and transepts with an open timber ceiling of steep pitch, and low aisles, the nave-arches, carried upon columns of polished granite, themselves of alternate voussoirs of brick and stone, and the aisle-walls lined with brick in different colors. A peculiarity of the design is the opening by a large pointed arch of the gable wall at the end of the nave, and of the corresponding wall over the chancel arch, a very effective device by which the framing of the roof at the crossing and of the roof of the apse are made visible from the nave. The roofs are excellent examples of decorated construction in timber. The architect's color-decoration enhances the effect of these dis-

positions and is highly successful, a sober and rich harmony in brown, red and gold.

The station at Detroit is not without interest on its own account, but its principal use to the designer was in the training it gave him for a much more important work in the same kind, the Dearborn station in Chicago. This remains architecturally by much the best station in Chicago, and one of the ornaments of that city. The outcome of a railway station, even when it also houses the offices of the company, is a low building, and a lofty clock tower is "indicated" as a means of giving it importance as well as for its own appropriateness and utility. The present tower is a very picturesque object, with the main entrance alongside of it, and not in it, which would detract from its apparent solidity, by its boldly rusticated base, its smooth and solid shaft, effectively banded and effectively pierced with openings that emphasize its solidity and especially by its effective and original crowning member, the saddle-backed and hipped roof, with its many storied gable. The originality of this tower is the more impressive and acceptable because it so evidently proceeds not from a mere caprice, but from a rational analysis. It is all the more admirable because Chicago is on the whole a spireless city, and so good a spire is there especially effective, the more effective because it is happily placed so as to close the vista of a street, whereas commonly the vista of the street dwindles out flat and straight *ad infinitesimum*. The building thus effectively crowned is architecturally, one may say, mainly of importance as a base and setting for the tower, but it is well designed in itself. The expressive treatment is also impressive, by which rooms that come where and as many and as large as they are wanted, are yet brought into a composition, of which the general balance has more life than would be given to it by a formal symmetry. The texture given to the walls by the bands of reeded brick is effective, and the broad, low dormers, with the emergence of the tower, sufficiently relieve the otherwise unbroken expanse of the main roof. One might wish for a somewhat more aspiring character in these dormers, it is true, and indeed the charge of an undue heaviness might lie against the general treatment of the building, excepting always the tower. This character is promoted by the scale of the detail, which is perhaps excessive in protest against the commoner recent fault of a niggling minuteness, which so many designers confound with "refinement." The just mean in this is not easy to hit, and to hit it requires experience. But the quality of this

Capitals—Racquet Club.

detail is very good. The design of it shows life, vigor, invention, and, in the terra cotta, an intelligent recognition of the peculiar plasticity of a material which is shaped soft and fixed into rigidity by exposure, as may be seen by comparing it in this structure with the detail in stone work. Suggestions in design from the use of the chisel enhance the attractiveness of detail in stone, and are inadmissible in terra cotta. The tame smoothness of surface that impairs the effect of so much otherwise well-designed work in terra cotta is here avoided merely by random strokes of a saw on the wet clay. This very simple expedient fulfills perfectly its purpose of giving texture.

Double Capitals—Telephone Building, Broad Street.

Capitals—Main Pier, Racquet Club.

The Buffalo Library presented a far more difficult and complicated problem. This was to accomodate a library, a gallery of works of art and the collections of a historical society, on a site which, though ample in extent and admirable for conspicuousness, was of extreme irregularity, a right angled triangle truncated at the apex, which was also the most conspicuous part of it. The building committee had sent to the competitors a sketch plan suggesting the distribution of space, and the practical convenience of this plan was as apparent as its architectural intractability. This latter, indeed, would be admitted by most artistic designers on the evidence of the ground plan of the building as executed. Richardson characteristically cut the Gordian knot by ignoring the suggested arrangement and setting his building across the back of the plot. This gave opportunity for a symmetrical treatment and a long expanse of wall, the expanse of which he enhanced by covering it with an arcade, with a massive round tower at one end and a turret at the other. It was an excellent example of his talent for simplification, one of his most effective designs, and though he had not the opportunity of executing it, the motive has been adopted, and carried out better or worse, in actual works by less distinguished architects. But it seemed to the committee that this was a case too complicated to be reduced to so very simple an explanation. Mr. Eidlitz, in his letter to the committee, wrote that the making of many independent studies had "confirmed the impression that no disposition essentially different from that arrived at by you could, under the conditions of the site and the limit of cost, be made to meet so well the varied requirements of your enterprise." The architectural difficulties of the most rational and eligible arrangement, the architect properly and loyally assumed as his affair. Perhaps this assumption betokened also a belief that the faithful following of the actual requirements of a building under the actual conditions is the process that, far more than the assumption of an ideal form, leads to the most artistic result, since it gives the best assurance of individuality and thus the best promise, the only legitimate promise, of novelty and "originality." However that may be, the sketch plan submitted to the architects is in its outline the plan of the actual building. The chief change introduced by the architect was that while the basement and first-story of the main building were carried to the limit of the site, thus producing a book room sufficiently capacious but incapable of being sufficiently lighted, he withdrew the wall above the first story far enough to admit an ample skylight. The recession of this upper wall at the centre, and the retention of it at the flanks, supplied an architectural opportunity of giving form to the main building, enforced variety in its roofing and converted it into a composition, an assemblage of related parts. The crucial difficulty of the design, however, remained, and that was the uniting into an architectural whole of two buildings upon diverging axes. It

PIER CAPITAL—FIDELITY BUILDING.

will be agreed that this difficulty was very cleverly overcome by the expedient adopted, of a massive porch at the re-entrant angle of the junction, and the erection just beyond it of a massive polygonal tower, which constitutes a point of departure from which the different buildings may diverge, without entailing the sense of awkwardness and disconnection that seems to be threatened by the ground-plan, and which supplies a reconciling, dominating, unifying feature. The treatment of this tower is very good indeed. Its monumental quality is scarcely compromised by the evidence it affords that each of its stages is made the most of for practical uses. Though it is plain that academical correctness was the last thing in the designer's mind, the building may be loosely classified as an example, or rather as a reminiscence, of German Romanesque, and this impression is most strongly given by the tower, which in its stalwart proportions, the division of its stages, the gablets above its alternate faces, and its simple and spreading roof pretty distinctly recalls Rhenish architecture. The same character is given to the building in general by the simplicity and massiveness of the treatment and the vigor and boldness of the detail. It is without dispute a distinguished success, which becomes more remarkable when the conditions, at first sight so unpromising, are considered, and when it is considered that the success has been made not by shirking but by loyally accepting these conditions.

Of about the same date with the Buffalo Library is the Telephone Building in Cortlandt street. It is curious to note how the introduction of the skeleton construction has antiquated the commercial buildings erected before its advent, almost in as great a degree as the introduction of the elevator nearly twenty years before. It is not at all likely that the owners of the plot upon which the Cortlandt street building stands, if they were to build now, would limit themselves to the comparative modesty of eight stories. Neither indeed is it likely that they would acquiesce in the comparative massiveness of treatment which was in part enforced by the conditions of masonic structure, and in part due to the architect's evident purpose to make the very utmost of the spaces necessarily reserved for points of support. Considering the conditions of a commercial building, it is almost a compliment to the architect to say that the massiveness of the building is carried so far as to give the impression of heaviness which is doubtless the defect of the design. This is due more than to anything else to an exaggeration of the scale of the detail. This does not hinder the building from being interesting and successful. The front, which is of some 70 feet wide by over 100 high, is triply divided both laterally and vertically. The vertical division is into a basement of two stories in red Scotch sandstone, with piers and lintels of metal in the first story. The superstructure is in dark buff brick and terra cotta, and the second stage is composed of three stories virtually uniform in treatment, with three openings in each of the flanks and two at the centre, covered with segmental arches in terra cotta. The lateral piers are withdrawn into the plane of the main wall above the fourth story, with heavy decorated offsets, while the centre maintains its projection and

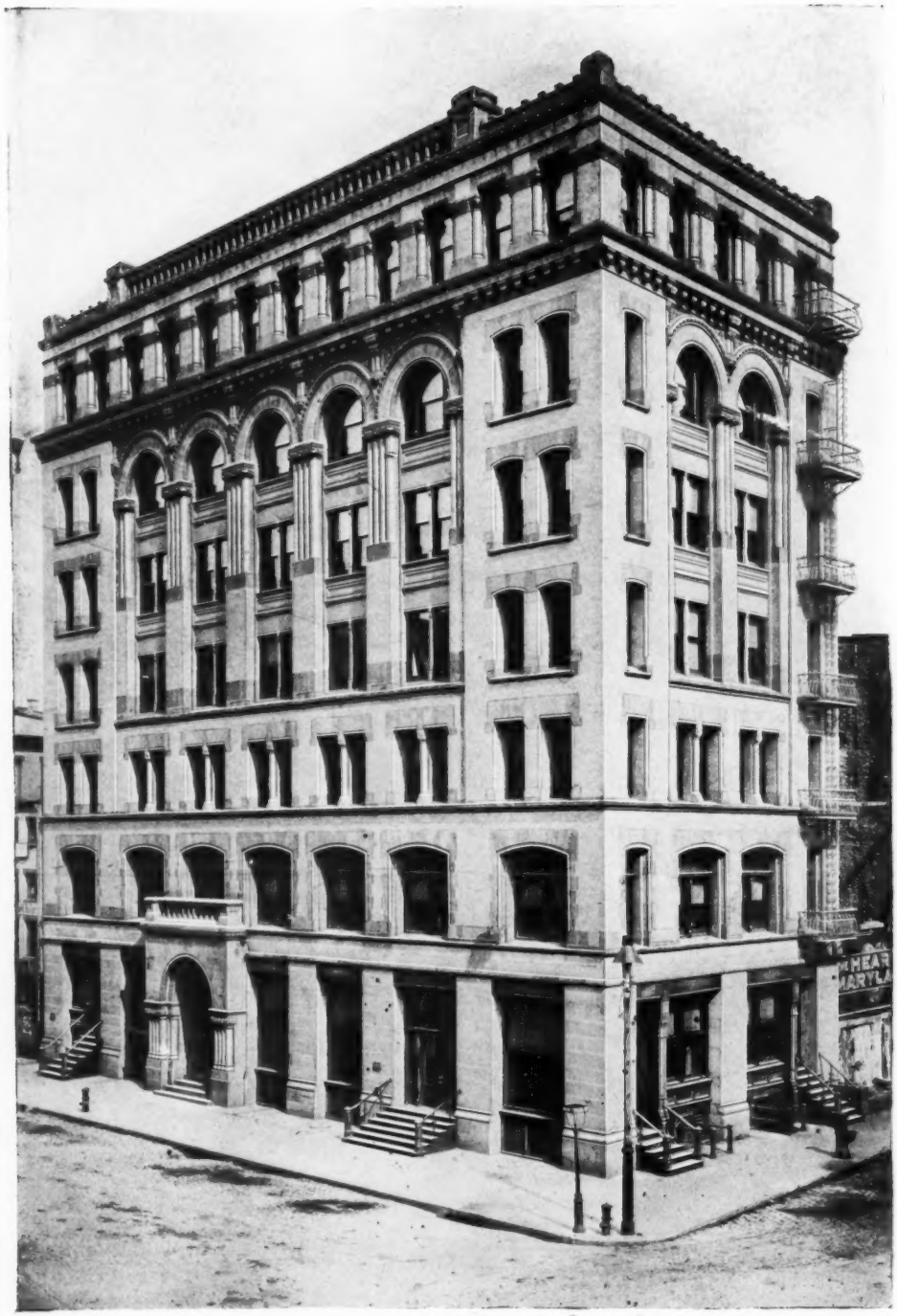
THE BUFFALO LIBRARY
SCALE
STACK ROOM
DELIVERY ROOM
CATALOGUES
READING ROOM
VESTIBULE
PORCH
READING ROOM

Buffalo, N. Y. THE BUFFALO LIBRARY.—1887. Cyrus L. W. Eidlitz, Architect.

is spanned above the fifth story by a round arch in sandstone, recalling the material of the basement. These dispositions, it is evident, are intended to take away the hard and crude aspect of a front built in layers, without compromising the general division, and in this they are entirely successful. The seventh story is a series of round arches, turned between stout columns and considerably enriched, while the openings of the eighth, aligned over the arcade, are covered with "shouldered lintels," single blocks dropped between spreading skewbacks. This is an arrangement especially appropriate to terra cotta, since it reduces the size and the bearing of the actual lintel to a block easily manageable in baked clay. The entrance, a heavy Romanesque archway, with a large decorated roll at the intrados, is very effective. The elements employed here the architect has employed in subsequent work with a success that makes the use of them here appear a little crude and rudimentary. But nevertheless this building is upon the whole a first attempt not only encouraging as a promise, but a distinctly successful performance. No attentive observer of it can fail to remark with pleasure the idiomatic and vernacular treatment, in several instances, of terra cotta with reference to its own qualities, and not merely as a cheaper substitute for stone, and the extension of this treatment in later work is one of the designer's chief claims upon the esteem of his profession.

The Western Electric Building, a year or two later than the first Telephone Building, unfortunately stands where it cannot be fairly seen, bounded as it is on one side by a street that is little more than an alley, and on the other by the elevated railroad. It is worthy of a better place, because it is an exemplary specimen of a class of buildings which not only owners, but even many architects, do not seem to consider to belong to architecture at all. Formerly, when factories were limited to four or five stories, the builders of them disdained to invoke the aid of architects. Now that an increase of height and weight has rendered a factory so much more complex mechanically than it used to be, that it is necessary to call in a trained constructor, he commonly confines himself

New York City. WESTERN ELECTRIC BUILDING—1889. Cyrus L. W. Eidlitz, Architect.



Broad Street, New York City. TELEPHONE BUILDING—1890. Cyrus L. W. Eidlitz, Architect.

to the consideration of the mechanical problem. In Chicago, when the architects design the factories, they deduct two-fifths from their ordinary commissions, on account of leaving out art, I suppose, and never think of enumerating the factories they do among their "works." All the worse for the factories, which are sure to be conspicuous buildings and which really ought not to be eyesores. The building of the Western Electric Company is very far indeed from being an eyesore. The designer has recognized that it was not seemly to enrich a factory, or to add to it the "unnecessary features" in which Mr. Ruskin declares architecture exclusively to consist. In the Western Electric Building the only features that can be said to be unnecessary are the moulded string-course above the third story, the projecting corbelled course above the ninth and the crowning parapet, and these are designed with the simplicity appropriate to a building of strict utility. The building owes its very respectable aspect to the general composition, and this consists mainly in the fortification of the angles, which are somewhat more solid than the huge sash frames they enclose, and to some emphasis upon the depth of their openings. The effect of these dispositions is merely enhanced by the introduction of the members mentioned and by the expression of the structure in which alone the ornament consists. All this seems very elementary, but nevertheless it is very commonly disregarded by architects who have factories to do, and even by architects of name who in other lines of work manifest professional ambition and power of design. A factory is as proper an object of architectural design as a palace, in its own way. It equally demands its own suitable expression. In the great architectural periods every erection whatever was an object of architecture—was at least an exposition of its own construction. It is an impeachment of the interest in art in which we are coming to plume ourselves that any class of buildings should be considered to be taken out of the architectural class, just as it is an impeachment of the artistic temper of any individual architect that he consents to leave out architecture from any building that he undertakes, just as it is when he consents to confine his architecture to one face of a building, and in effect asks the spectator to leave out of view another face equally conspicuous. It is for this reason that the Western Electric Building, which is at once an unmistakable factory and an unmistakable work of architecture, is so highly exemplary.

The Metropolitan Telephone Building, in Cortlandt street, has now been followed by a like building in Thirty-eighth street, of which it is architecturally the progenitor, and by one in Broad street, which is of a different motive, and is undoubtedly successful in its not very pretending way. This is a seven story building, with a basement of one story, a middle division of five and a colonnaded attic in buff brick and buff terra cotta. Of this the Western Electric may be called the architectural progenitor, the main motive being here repeated; that is to say, the fortification of the angles whereby a triple division laterally is secured to each front, in addition to the triple vertical division already secured. The single entrance at each end of the narrower front adds plausibility to this division. As is appropriate to the uses of the building, the emphasis by ornament of the structural divisions is carried further than in the factory, and the colonnade of the attic gives even an impression of richness, though the building is upon the whole plain, as it should be. The other feature is the rather rich and successful Romanesque archway by which is signalized the main entrance of the longer front. The fire-escape, introduced here merely by way of reassurance, since the building is fireproof, is so managed as not to "bother" the architecture and becomes æsthetically innocuous.

The Black Building, in William street, is descended again from the Telephone Building. It is so much the most successful of the group to which it belongs that I am sorry it is

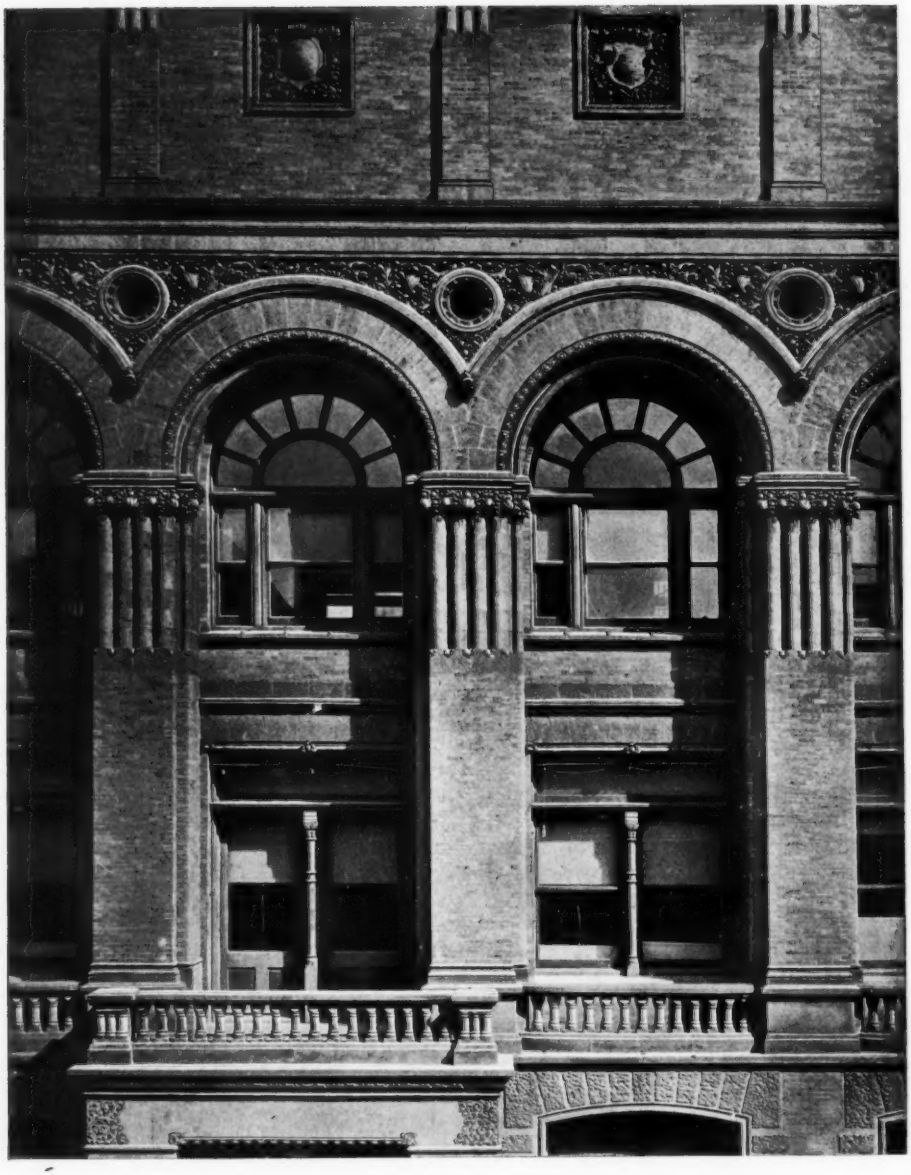
FIDELITY AND CASUALTY BUILDING—1894.

New York City. Cyrus L. W. Eidlitz, Architect.

not practicable to illustrate it here. It is the introduction and the treatment of the gable and the design of the entrance that give it its family resemblance, though decidedly it has a physiognomy of its own. It is of red sandstone, cream-colored brick and terra cotta. The lack of symmetry in the front, it is to be hoped, may be corrected by the addition of another wing, but the architect is not only not to be blamed, but is to be praised for it, considering his conditions. He has set his triple arcade, which should, of course, be a central feature, with its crowning gable opposite the debouchure of a street, the vista of which, from the other end, it stops in a very effective and picturesque way. The tall arcade becomes all the more striking when it is thus framed. It is very well proportioned and detailed in itself, and it is framed in the building above by the arcade attic and below by the plain story which is interposed between it and the basement, although unfortunately not at the sides. To me this is the most successful of its author's commercial buildings, always excepting the Fidelity.

It is to be noted that he has not thus far in any executed work except the Fidelity Building been called upon to attack the real problem of the present in commercial architecture—the skyscraper. The comparatively modest altitudes of nine stories or less that we have been considering do not raise the question as it has been raised by the skeleton construction. Mr. Eidlitz has now in progress, however, two unquestionable skyscrapers, if we put the limit at ten stories. One is an extension of the Metropolitan Telephone Building to Dey street, where it will emerge in a front of twelve stories, vertically extensible three or four stories more, which he proposes to face with a veneer of glazed white terra cotta. The other is the Townsend Building, at Twenty-sixth street and Broadway, of which the sketch is herewith shown. This sketch exhibits plainly enough that its author has an intelligent aprreciation of what has been established by the experience of the pioneers, that the skyscraper must have a powerful base, a plain shaft and a rich crown. In respect to the base, the designer of a skyscraper in the "shopping district" at once enjoys an advantage and labors under a disadvantage in the same condition—that is to say, the necessity of a very lofty and a very light ground floor. The first condition gives importance and separateness to his base; the second forbids him to give it massiveness and compels him to attenuate his piers to the structural minimum. In this respect the architect of the Townsend Building has availed himself to the full of his privilege, and has loyally accepted its corresponding misfortune. The general scheme is promising. So much depends upon execution in structural, as well as in decorative, detail that more than this can not safely be said of an unexecuted project for a skyscraper, which is, indeed, necessarily subject in execution not only to supplementing, but also to more or less of modification

The building of the Fidelity and Casualty Insurance Company is one of the most noteworthy and successful of our tall buildings. As in the Broad Street Telephone Building and the Racquet Club, the main motive of the design is a framed arcade. This is carried out to a very good result in the longer front, where the central arcade of four openings receives a visibly ample abutment from the more solid wings, where it is set upon a sufficient base in the two stories of stone basement and the intermediate story of perfectly plain openings, and where it is appropriately surmounted by another plain intermediate story under the emphatic and rather rich cornice and the slim dormers of the roof. The sense of abutment is enhanced, and indeed the whole front gains very greatly, by the emergence above the cornice of the wings as pavilions, and their separate roofing. Perhaps the narrower front, which so few people have occasion to look at close at hand, is even more successful. Certainly it is one of the most agreeable and picturesque of the objects that animate the skyline of the lower



New York City. RACQUET AND TENNIS CLUB—1891. Cyrus L. W. Eidlitz, Architect.

island as seen from the North River. Here the arcade is reduced to a single central opening flanked by simpler and smaller openings that do not disturb the sense of security and consequently of repose that is imparted by its expanse. The proportions of the front are those of a real tower, and the treatment is picturesque in spite of the avowedly utilitarian purpose of the structure. The tower is happily crowned by a parapet story and a steep roof, relieved by dormers, in just and rhythmic relation to what is below. It is the more a pity that the building is so much obscured by the elevated railroad, for, as the illustrations prove, it contains some of the author's cleverest and most idiomatic detail in terra cotta.

The three quasi-public buildings which are the latest of Mr. Eidlitz's executed works, the Racquet Club, the Bank for Savings and the building for the Bar Association, as they are the most important are also the most interesting of his contributions to his art thus far. Any one of them taken by itself would give its author a place in the first rank of his profession. The three taken together give one a new notion of his range and versatility.

The Racquet Club presented an unusual advantage in the extent of its frontage, 142 feet. It presented also what at first sight was a disadvantage in that the conditions required that the playing courts should be at the top of the building, should employ every available inch of its area, and should be bounded by solid walls. Yet it is to the faithful adherence to this unpromising requirement, that the top of the building should be the solidest part and that there should be no break or recess in it, that the building owes its physiognomy. Had the conditions been less rigid the designer would naturally have enforced the triplicity of his lateral division by withdrawing or by opening either the centre or the wings. In the original sketch it was proposed to enforce this division by the erection of a belvidere or roof-garden at each end, and doubtless this would carry still further the expression of the general scheme. But it is expressed already in a very emphatic way.

The central feature of the composition, to which all the rest is subsidiary, is the arcade of five openings running through the second and third stories and dominating the whole front. As he was prevented, by the necessity of carrying his upper wall to the outer limit, from withdrawing the centre either above or in its supports below, the architect embraced the opportunity left to him of signalizing his central feature by giving great depth to the piers of his arcade while leaving their faces in the plane of the advanced wall above. The result, as everybody knows, is extraordinarily impressive. It would be difficult to find in New York another piece of architecture which gives such an impression of nobility and power. And yet there is nothing of "brutality" in the vigor of this arcade. The piers stark, but for one emphatic moulding at the angle, in the lower story, are modeled into a rank of shafts in the upper. Mr. Eidlitz has employed this arrangement also in the pilasters that relieve the blank wall of the upper story, but there the absence of an evident reason for "drawing the line" gives it a look of something forced and arbitrary. In the present case the transition coincides with the division of the stories which, although the two are grouped, is rather emphasized than slurred by the deep and heavy recessed transoms, and the transition from plain to modeled pier helps to mark this division. The inherent effect of this succession of powerful piers and arches is greatly enhanced by the fact that the arcade is heavily and unmistakably framed. To build arches without visible abutments is a very common vice, the victims of which do not reflect that the more powerful the aspect of an unbuttressed arch, the weaker is the aspect of the wall of which it is a part. The power of the arch is the measure of its tendency to "kick," and when there is no visible provision for arresting this tendency, the strength of the arch is the weakness of the wall, and the wonder of

22d Street and 4th Avenue, New York City. THE BANK FOR SAVINGS BUILDING—1894. Cyrus L. W. Eidlitz, Architect.

the spectator is what prevents the wall so vigorously attacked and so undefended from tumbling down. This is the feeling the central arcade of the Racquet Club would inspire if it comprised the whole front. This is the feeling that a near neighbor of the Racquet Club does inspire and that I am afraid I must add, is inspired by one of Mr. Eidlitz' own works, in other respects so admirable, the Black Building in William street. But in this case, the wings with their smaller openings and their solider treatment, supply to the great arcade its visible means of support, and give to the whole front an assurance of stability. The arcade is equally framed above and below. In the latter case it is detached by the single story of simple openings, which might perhaps with advantage have been simplified still further by the omission of the porch, and the restraining of the entrance to the plane of the wall. There is nothing in the porch, except the clever modeling of the capitals, which would make its absence regretted. Above, the arcade is framed by the solid boundary of the courts, unbroken except by the slight buttress-pilasters that denote the rafters and the decorated panels between them. It is questionable whether a lighter and richer treatment of the upper story, had it been practicable, would have been as effective. Certainly it could not have more strongly detached and emphasized the arcade. It is a very good lesson in architecture to note how the effectiveness of this front depends upon the subordination of all the rest to the central feature. It was such a reduction that made the fortune of Richardson's most successful works, and his felicity in which made a great part of his power of design. It remains to be added that the detail by which these dispositions are enhanced is almost unfailingly admirable. It is the more admirable because it is thoroughly characteristic of the material. The plasticity of terra cotta has seldom been more effectually recognized and made available than in the ingenious and spirited detail of this front. Alike in the capitals of the piers, in the ornament of the spandrils and in the shields of the panels, the spectator receives an assurance that the necessary medium of the design is modelled clay, and this correspondence of design and material is an element in the pleasure he derives from it. The building is also very fortunate in color, brown stone in the basement of a tint that goes very well with the rich and dark mottled brick and a somewhat darker terra cotta, so employed that the weight of color tends everywhere to accentuate the stress of the construction.

The Bank for Savings in Fourth avenue is so admirable a piece of architecture that it is especially gratifying that it should have achieved so marked a success with the public, should be, indeed, perhaps the most popular of recent buildings. The nature of this success is very well worth inquiry. In the first place a savings bank is of course a particularly tempting problem, and it has become the more tempting since so many commercial institutions have succumbed to the temptation to submerge their own abodes in or under a mass of income-yielding apartments, among which their own quarters can with difficulty be identified. It is impossible to blame ordinary commercial corporations for doing this. Their defense is as conclusive as that of the legendary Irish peasant, expostulated with upon his extraneous inmate, is indeed, identical with it: "It is the pig that pays the rent." Still the provision for the extraneous inmate undoubtedly tends to confuse the architectural expression of what is primarily the home of a commercial institution. When a commercial institution sees its way to providing itself with a building exclusively for its own use, it earns the gratitude of its architect, and, if he be the right architect, of lovers of architecture in general. A savings bank is one of the very simplest architectural problems, consisting really only of a single light and airy and consequently lofty apartment, with its dependencies, and in the present case the actual requirements were reduced to the essential requirements, and the architecture to their simplest

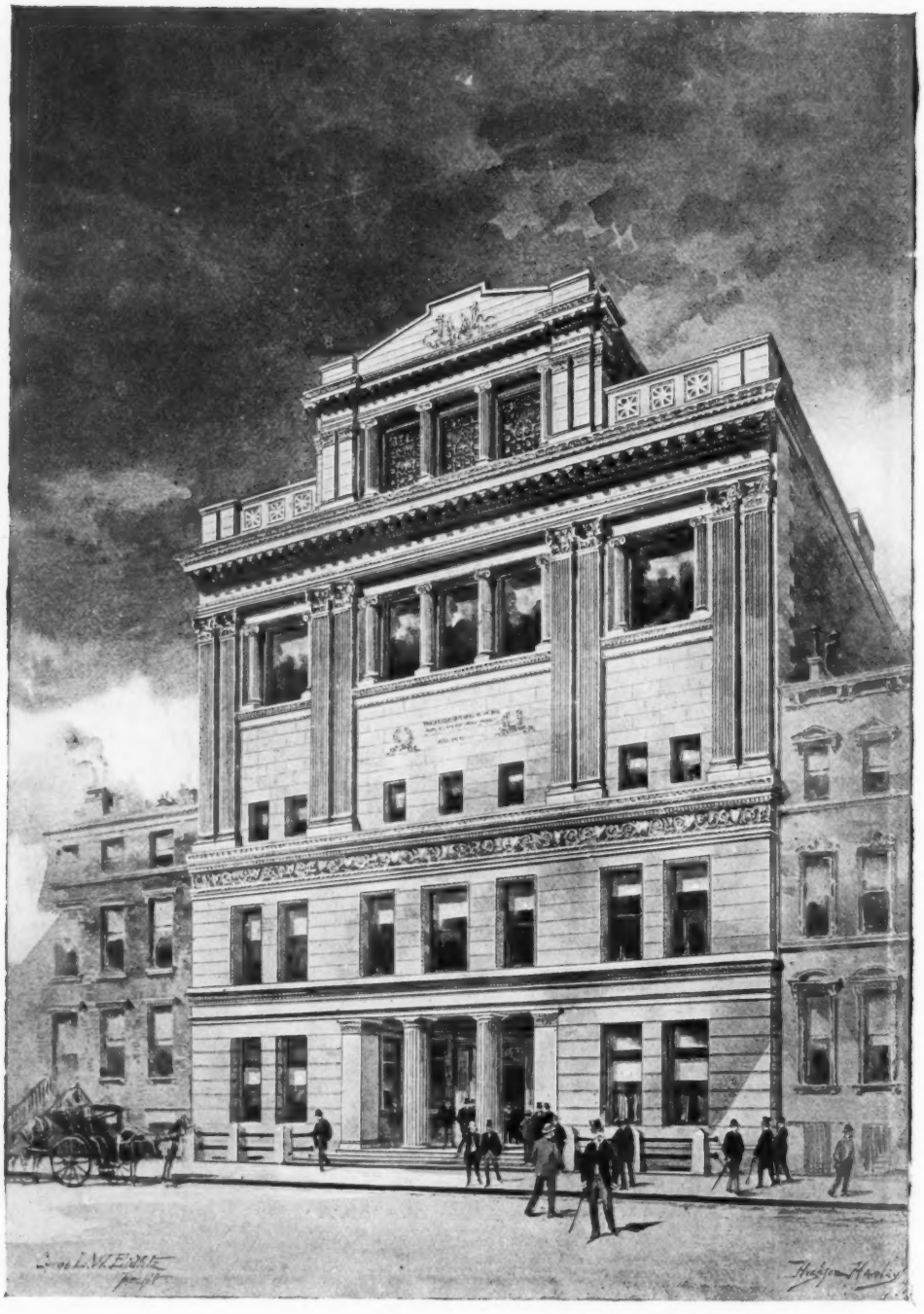
expression. And how very effective an expression it is! The very happy thought of withdrawing the superstructure into a cross, while carrying the substructure to the limits of the rectangle, served the purely artistic purpose of detaching and emphasizing the principal story, and the practical purpose, which is here also an artistic purpose, of enabling the architect to treat his porches and other dependencies as dependencies, and, although the separateness of the stories is emphasized, to express unmistakably and in spite of this division, the unity of the apartment, the fact that he is building a room. And the general scheme is carried out with consistency to the last detail. The absolute plainness of the basement, excepting the outlying porches, the treatment of which is still severe, gives value to the enrichment of the triple arcades above, which is still further enhanced by the absolute plainness of its enclosing wall. The terminal piers of the arcades are of an ample breadth, and the sense of abutment is additionally given by the filling out of the angles below. Another source of effectiveness is that while the outer angles of the building are opened into porches, the basement is kept solid at the corner towards which the arcades converge. The narrow slits between and outside of the openings of the basement really emphasize, even while they relieve the massiveness of the wall, and there is a curious and subtle felicity in the placing of them. The relation of voids to solids in this work seems to me almost perfect. It is so perfect that in block, without an ornament, this would be an impressive and distinguished building by force of mass and outline. It is so when it can be seen only in outline. The highest merit of the detail is that all of it tends to promote this inherent expression, and is far more valuable in its place than out of its place. In adjustment and scale it has been studied with complete success with reference to its situation and its material. I have mentioned among the defects of the designer's earlier work a tendency to excess in scale of the detail. This has here been entirely corrected without falling into the opposite fault of undue minuteness. Whether it be the frieze of the first story, the balustrade above it, the modelling of the upper openings, the enrichment of the spandrils or the rich modillioned cornice, its adjustment has been so successfully studied that it takes its place perfectly, and is "just right." No minutia has been neglected. Even so small a matter as the rubbing instead of the commoner tooling of the surface entirely removes the impression of coarseness which the Tuckahoe marble is apt to give and adds very greatly to the total effect. Another trifle is worth noting as an illustration of the author's discretion, and that is the treatment of the granite buttresses that flank the steps of the entrances, where there is a suggestion of a cushioned seat. No architect needs to be told that this belongs to a class of effects that very easily become outrageously vulgar, but this is managed with so much discretion and reticence as to be very attractive.

The outcome of the study that has been devoted to this work, in composition, in modelling and in ornament, is what I imagine most students would agree in calling the most classical piece of architecture in New York. I can think of no other which gives quite the same sense of lucidity and purity, of precision and "just rightness." And it is especially to be noted that this result has been attained in a building in which the design is an exposition of the structure, in which none of the forms are borrowed from the antique, in which the detail is original, and which is an example of Romanesque. To attain in free architecture the distinctive charm of classic architecture to gain purity without losing expressiveness is a rare, if not a unique achievement in contemporary work.

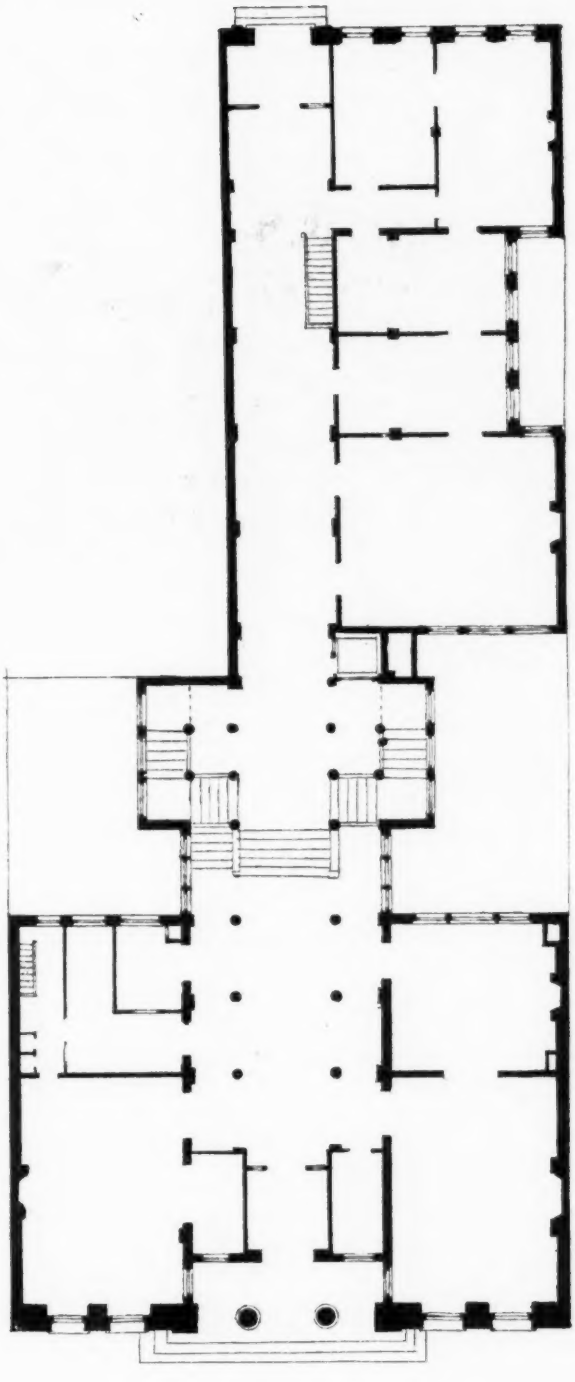
In the building for the Bar Association, the architect has not repeated this ambitious and successful attempt at a refined and "elegant" Romanesque. He has undertaken the more usual task of attaining a classical expression by the use of the classic forms, has forborne to devise his own

Chicago, Ill. DEARBORN STATION.—1886. Cyrus L. W. Eidlitz, Architect.

detail, and has contented himself with selecting from the repertory of antique details those which best suited his purpose. Even with this renunciation, the problem was by no means so simple as that of the Bank for Savings. A library, with its dependent book-room, superposed upon two tiers of subordinate apartments, is manifestly a much more complicated scheme than a single room with its dependencies, and in it classical simplicity is correspondingly more difficult to attain, especially if an expressive treatment be adopted, as has been done in the principal front of the building for the Bar Association. The library and the stack-room are distinguished and united by the main order, the clerestory of the library is indicated in the triple opening above, and the subordinate stories below are treated with appropriate plainness, the chief feature by which their plainness is relieved being the powerful and impressive Doric entrance. The chief task of the modern architect who employs the antique forms, after the choice of such as are most appro-



44th Street, New York City. THE BAR ASSOCIATION BUILDING—1896. Cyrus L. W. Eidlitz, Architect.



THE BAR ASSOCIATION BUILDING.

Ramapo, N Y. RESIDENCE OF J. O. DONNER. Cyrus L. W. Eidlitz, Architect.

priate to his scheme, is the adjustment of them in detail so as to tell best, to be effective without being excessive, in a word, the fixing of their scale. This adjustment is by no means easy, no easier in compilation than in original design. In scale it will be agreed that the classic ornament employed here has been adjusted to its place with entire success, alike in the columns of the entrance, in the anthemion frieze that marks the main division of the front, in the principal order of pilasters, and in the rich cornice.

The lesser front on Forty-third street is of an extreme simplicity, being only the face of an assembly-room and of the basement through which access is gained to it, and here a classical simplicity is comparatively easy of attainment. It has been attained with great success. A colonnade carried upon a plain and solid base and crowned with a rich modillioned cornice, these are the elements of the front, and they have been composed with perfect simplicity and to a very happy result. The colonnade gains force not only from being set upon a plain wall, but from its own solid flanks of wall, relieved only by the inscribed panels at the sides. There are few street fronts pleasanter to look at, and I fancy that the most rigid classicist will be inclined to admit that the departure from exact symmetry in the placing of the entrance at one side adds to the effectiveness of the design.

The architect is much to be congratulated upon the enlightened liberality of his clients, which has enabled him to distribute virtually into two buildings the two principal requirements of their association, the library and the assembly room, and even to front these upon different streets, instead of forcing him to crowd them upon the same area. The result is not only of advantage to the exterior architecture, but it gives to the interior the sense of amplitude and spaciousness which is necessary to a really monumental impressiveness. As will be seen from the plan, it has enabled the designer to open a vista of 200 feet in the main corridor of the ground floor. It has enabled him also to give effective dimensions and an effective disposition to the library which occupies the whole area of the wider building. The arrangement of nave, aisles and clerestory, suggested by the neces-

THE TOWNSEND BUILDING—1896.

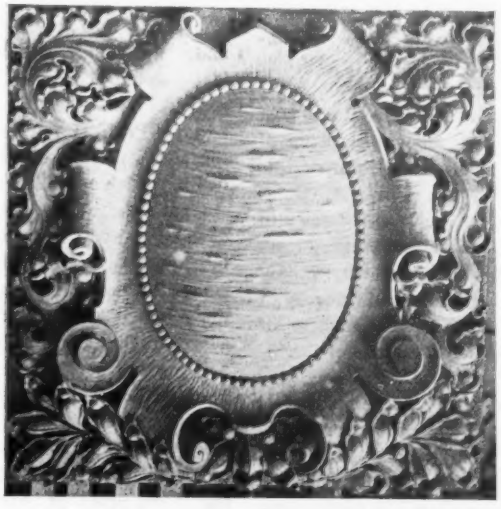
Northwest corner Broadway and 25th Street, New York City. Cyrus L. W. Eidlitz, Architect.

New York City. RESIDENCES ON WEST 86TH STREET—1890. Cyrus L. W. Eidlitz, Architect.

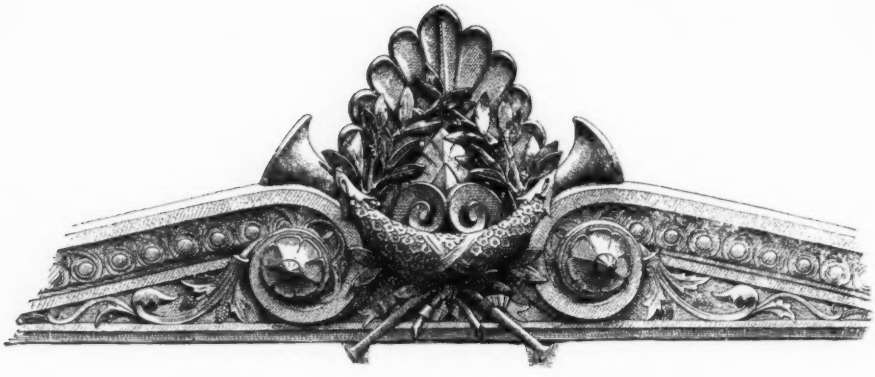
sities of the case, has been carried out on a monumental scale and with monumental material. We have very few interiors so impressive as the nave of this library will be, with its actual length of 90 feet greatly increased to the eye by its division into seven bays marked by the granite shafts, with Ionic capitals and bases in marble, that support a heavy entablature of stone work, especially when the effect of the architecture comes to be heightened by color-decoration. It is one of its designer's most noteworthy successes.

It will be agreed, I am sure, that the work herewith shown is not only very interesting, but that it is progressively interesting, and that the designer has advanced steadily in mastery of form and in grace and spirit of detail. It is worth pointing out, too, that the work is interesting in great part because it is so reasonable. There are among the buildings here illustrated, no freaks, no eccentricities, no straining after novelties, but everywhere the attempt to satisfy the real requirements of the case in hand, and to conform the architecture to them. In at least two instances we have seen that requirements which might have seemed at first sight architecturally impracticable have issued, after faithful study, in a much more forcible and a much more original architectural expression than could have been obtained by the endeavor to evade or to ignore them. It is this reasonableness and the increasing power that comes of it, which makes the architect's work exemplary as well as interesting, and it is this which adds force and point even to the decorative detail. I do not mean, of course, that the power of design shown in the best of Mr. Eidlitz's detail is other than a gift, or that an ungifted architect could acquire it by taking thought. But I do mean that the constant consideration of appropriateness adds to purely decorative design, abstractly graceful and effective as decoration, an additional charm of craftsmanship. When a talent for decoration is applied to the idiomatic treatment of material, as is so eminently the case with the best examples here shown of Mr. Eidlitz's work in moulded and baked clay, the result is a positive and valuable addition to the existing repertory of architectural detail.

Montgomery Schuyler



PANEL—RACQUET CLUB.



NEW BOOKS.

A Cyclopædia of Works of Architecture in Italy, Greece and the Levant. Edited by William P. P. Longfellow. Charles Scribner's Sons, 1895. 4to., pp. xxxii., 546.

The attempt to present in one volume, even a large one, an encyclopædic account of the architecture of Italy alone would be in a sense a vain attempt. If we suppose three-quarters of the present volume, or even four-fifths of it, to be devoted to Italy we shall still find that a book of less than 300,000 words cannot include all the Italian buildings which the student of architecture ought to have access to, nor a half of them, nor a third of them; and, moreover, it will appear certain that even the buildings which are named must be described inadequately. The task, which it seems right to describe as an impossible one, has in this instance been put into the best possible hands. Mr. Longfellow, the editor, has long been known as one of the most scholarly and judicious of modern students of architecture, and he has been engaged upon this work for several years. Mr. Chas. A. Cummings, whose work as an architect is known to all who know Boston, and who has retired from the active practice of his profession to give only the more attention to the theory and history of his art, has furnished "the greater number of the articles on the mediæval and later architecture of Italy." Prof. A. L. Frothingham, Jr., of Princeton College, this year employed as first Secretary of the American School for Classical Studies in Rome, has given a number of articles concerning Italian mediæval churches. This subject Prof. Frothingham has made peculiarly his own by original researches into the first appearance of pointed architecture in Italy; the dates of the earliest monuments and the probable causes of the appearance in Italy of this essentially northern style. The classical part of the book is the work of the late Thomas W. Ludlow, for many years the Secretary of the Managing Committee of the American School of Classical Studies at Athens and editor of the "Century Dictionary" in the Department of Architecture; in connection with which last-named publication he has left behind him a piece of work of extraordinary thoroughness and accuracy; unequalled by any special dictionary of architecture.

A bibliography is given in which the books named are classified under General Treatises; Classical Architecture, arranged under subtitles; then Italy, arranged in the same way; and, finally, the countries east of Italy. This bibliography is, of course, chiefly the work of the specialist writers and the editor. Prof. Harold M. Fowler has aided in the classical part of this since Mr. Ludlow's death. Such a bibliography never satisfies the student unless it is so complete that he can think of few important books which are not contained in it, and the present one has no such pretensions. A preliminary note, indeed, alludes to difficulties in the way of compiling in America such a bibliography; difficulties which it is safe to say are not so great as here indicated. The attempted classification also is one which cannot be maintained without the repetition of book titles under different heads. Thus the especially important work by Francis Cranmer Penrose on the "Principles of Athenian Architecture" is mentioned only under General Treatises, and this fact has caused an English critic to state that the book is not mentioned at all. Indeed, there are

many omissions which it is almost as hard to explain as the omission of Penrose would be. A Glossary of architectural terms is also furnished; brief, but probably sufficient for such a work, in which, of course, the technical terms need not be very numerous. The Preface is an admirable piece of careful premonition, in which some of the many and seemingly insuperable difficulties of the task are set forth. The reader is warned most properly, most wisely, to beware of exact statements as to measurements in buildings, as to dates, and even as to the names of buildings which often change. The matter of transliteration and orthography is alluded to and its prodigious difficulty suggested. The articles themselves which are descriptive of the buildings are models of conciseness. The requirement being, in every case, a description which can be "understanded of the people;" this requirement has been met, in so far as description of a work of art can ever be comprehensible. In short, the work has been done as well as such a piece of work will ever be done; it has been done with wide knowledge, sound judgment, insight, patience and conscientious care. If, then, in giving an account of what the book actually is this article may seem unreasonable in pointing out that which is absent or deficient, let it be clearly understood that the book could not be better unless it were bigger. Such errors, or what seem to be errors, as will be alluded to are such as can hardly be excluded altogether.

The book is entitled a "Cyclopædia of Works of Architecture" rather than of architecture, more generally, because it does not deal with the mathematical or mechanical principles underlying the art of building, nor the principles of that application of fine art which turns building into architecture; and also as being a work of geographical limitations, dealing with individual buildings in places named, and not with groups and classes of buildings, nor with styles. It follows that the buildings contained in the countries named are the sole subject treated. Under any name of a town there are given the names of what are thought the most important buildings in that town, and under each of these titles a description of the building named. Thus, if we open the book casually at Assisi we find named in alphabetical order the Cathedral, the church of S. Francesco, the convent of S. Francesco, the church of S. Maria degli Angeli, and the portico of the Roman Temple. There is, however, no mention of the church of S. Maria della Minerva, except that the Roman columns now form part of it; none of the so-called *new church* built in 1615, nor of S. Apollinare with its pretty campanile, nor of the chapel of the hospital; and none of the interesting fountain built by Galeazzo Alessi, nor of the fascinating Loggia of the thirteenth century, called *Monte Frumentario;* nor yet of the early Gothic church of S. Chiara, nor of that of S. Pietro, although in each there are interesting architectural features; nor of some early mediæval houses which are typical in their way, nor of the interesting tower called *Torre del Popolo;* nor yet of the two cloisters of S. Francesco, the smaller Romanesque one and the larger two-storied one of the Renaissance. For the purpose of this inquiry into the relative completeness of the work Assisi has been taken altogether by chance. In this case it might be urged that nothing of supreme importance to students has been omitted. It is when the same examination is gone into with regard to a very important town that the matter becomes weighty, and that the reader has a right to ask what a cyclopædia should be. To take, for instance, Venice, and to count up the missing buildings, is to reach some surprising results. It is not merely that no mention is made of the *Vere da Pozzo* or cistern-heads, which are so characteristic, and which certainly deserve to be considered architectural, nor that the courts of houses, large and small, with their admirable out-of-door staircases are left unmentioned, nor that the many exquisite door-pieces and gateways leading into court-yards all over the city, from the *Abazzia della Misericordia* at the far North and the gate which has the sculpture of St. Martin and the Beggar at the far East to that of the Palazzo Foscari are all disregarded; nor that there is no allusion to the peculiar Venetian feature of a permanent connecting link between two palaces, as shown in the Madonna relief over the Ponte del Paradiso and in the curious light arch thrown across the Calle Bon at S. Severo; nor that the bridges themselves, of which some few are still ancient and many are interesting, should be ignored, nor that room is denied to the very numerous specimens of Byzantine, Gothic and Renaissance architecture throughout the town—here a row of five windows with sculptured spandrels, as in the celebrated "Four Evangelists Group" or the beautiful cusped arches which form an arcade on the Campo S. M. Mater Domini, and there an entrance doorway with its associated windows, as at the Corte del Remer opening on the Grand Canal, or some windows still left in an otherwise modern wall like those on the canal behind the Foscari Palace, perhaps the oldest architectural fragments

in Venice; all this is not very surprising. The absence, however, of any mention of the superb Gothic palace at S. Benedetto and of the equally magnificent one called Palazzo Priuli with its exquisite angle-window and of the two palaces on the Campo di S. Polo, so like to the Palazzo Badoer Participazio mentioned in the book that they are almost its doubles, and of the huge Palace Marcello at S. Nicolo da Tolentino and of the palace on the Fondamenta delle Zattere and of the palace which forms the Hotel Danieli at the South and of the Palazzo del Camelo far away on the northern edge of the city; this, indeed is calculated to make one think. The above are all Gothic palaces and the list might be greatly increased. There are, indeed, small houses in which people live comfortably, of which the principal windows and balconies are of fine Gothic type. Two of these at least have the names of private schools upon their front, but their exquisite and unrestored cusped arches of the latest Gothic fashion are none the worse for that. If now we consider the palaces of the Renaissance epoch and of the times following, we find a list of those not named in the book before us which is indeed formidable. The wonderful little gem on the Rio della Fava with its corbelled-out front overhanging an alley, the house with the spiral staircase in an open cage on the Corte del Maltese, the Palazzo Bianca Capello at San Aponal, the Palazzo Widman at San Canciano, the Palazzo Labia where the broad Canareggio takes its origin, the splendid Palazzo Grimani at San Polo, the Palazzo Angarani-Manzoni of rich, early Renaissance design, the Palazzo Vendramin at Santa Fosca with its exquisite Renaissance doorway, the Palazzo Bernardo on the Grand Canal, the Palazzo Tiepolo and the splendid late Neo-Classic palaces Pisani at S. Stefano, Frangini and Grassi; all these, to which two score of minor importance might be added, are of architectural value and are typical each of its own epoch and style. The important church of S. Pietro di Castello which was the cathedral of Venice until within a few years, with its Palladian front, its seventeenth century interior and its attractive campanile of a severe renaissance architecture, it has been found necessary to omit. S. Simon Piccolo of eighteenth century columnar architecture; St. Sebastiano of the sixteenth century with interesting architectural interior and well worthy of study apart from its famous paintings; S. Trovaso, to give its Venetian name to a typical Palladian church, more properly called S. S. Gervasio e Protasio; S. Toma, a late neo-classic structure of two different epochs; S. Maria del Rosario of the Gesuati, also of the eighteenth century; Sta Maria Formosa, a late renaissance church of great interest; S. Georgio dei Grechi, with its delicately designed sixteenth century front and three water gates, and its slender campanile, which inclines a little outward over the canal; S. Lorenzo, with its fine interior of enriched sixteenth century Corinthian and its unsurpassed architectural high altar; S. Giustina, with its colossal order of composite columns and the admirable working in of three tombs as part of the facade; S. Barnaba, also adorned with a colossal order, but more severe in style; S. Giuliano, one of the finest designs of the great Sansovino and a piece of severe Roman Doric; S. Fantino, S. Fosca, S. Giovanni Elemosinario and S. Maria Mater Domini, presenting four admirable modifications of the orthodox renaissance interior; S. Giobbe, with the loveliest renaissance arabesque ornamentation in Venice, abundantly and consistently applied both within and without; and, on the Fondamenta delle Zattere, the little church *degli Orfani*, with details of architecture and sculptured ornament worthy to be compared to thore of S. Giobbe—all these are to be sought elsewhere than in the cyclopædia. This list of pieces of architecture important to every student is not the compilation of any local antiquary; it is the partial result of a traveler's notes which themselves are being far from complete. There should be added to it many such exquisite pieces of antiquity as S. Gregorio, with its quaint cloister, its strangely rich and florid doorway and windows on the canal, and its late Gothic choir; and the curious early cloister, rather Romanesque than Byzantine, which is to be found behind the Ducal Palace by those who will ask for the Criminal Court at the Ponte di Canonica. And it is, moreover, to be kept in mind that large buildings which have been continually in the hands of successive generations of rebuilding and restoring possessors are not single structures, but combinations of many parts. Thus the western front of the Ducal Palace is a much later copy of the southern front, both in its general design and largely in its details; and the singular return of the southern front along the eastern wall on the narrow canal is also a thing to consider gravely. Moreover, and not to quit the Ducal Palace, when sculpture reaches the decorative importance of these angle groups and iconographic capitals, that sculpture needs to be specially weighed with regard to its relations to the whole design; and there are many buildings

in Venice of which this needs to be said. Concerning the Loggetta of the Campanile this is said in the Cyclopædia, and said well; but generally we miss the needed critical remarks upon associated sculpture. As for the architectural tombs, altars, aumbries, fonts and the like, with which churches are filled, there is little to be found in the pages under consideration.

It appears then that for architecture of the mediæval and later styles much more has of necessity remained unnoticed, even of important and instructive monuments, than there has been room to describe, and that, moreover, the descriptions are regrettably brief. The preface points out that buildings of classical times are treated more fully than those of the modern world, and undoubtedly this is true, as, indeed, the fourteen pages devoted to Pompeii show abundantly. Herculaneum, however, is not treated with any fullness. The treatment of Segesta, Paestum, Akragas, under the head of Girgenti, is all that could be desired, except as to such points as this, that the great temple of Zeus at the last named place has had no justice done to the strange peculiarity expressed in the text in the compound word pseudo-peripteral. The temple at Cori ought not to be called Roman Doric in style; a great chance at describing an almost unique building was missed when those words were used. The information given about the two temples in and near the ancient Metapontum seems to be as complete as it could be. The remains of ancient buildings at Susa, Ancona, Aosta, Benevento and Verona are completely described in so far as they are accessible and visible. The classical buildings of Rome seem to be adequately described; it would be difficult to go farther without invading the domain of speculation. The description of the basilica of Constantine is quite a model of compressed writing. What is said of the arch of Titus reminds one of a short-coming which all guide books share, the absence in such descriptions of the needed historical account of the monument in its later days. Who knows now that this triumphal arch, as it stands, is half a rebuilding of the years following 1822? As regards the completeness of treatment of the whole classical side of Rome, it appears to be all that could be asked, always excepting the matter of conjectural restoration alluded to above. It must have been hard to the editor to omit a restored plan of the Forum of Trajan.

Outside of Italy the circumstances are different. The buildings to be described are comparatively few, and will remain few so long as archæologists have no money to dispose of and cannot really explore those lands which once were civilized and are now or have recently been Turkish. What is said of the buildings at Athens, Epidaurus and Olympia seems to be excellent and is nearly always up to date, no slight merit. Less important sites, such as Orchomenos and Oropos and Thouria and Thoricus are also thoroughly well treated. What is said of the pre-historic buildings of Tiryns and Mycene is also good and full enough. And finally, the articles concerning the sites of ancient buildings in Syria and Asia Minor are so numerous and so much better than can be found elsewhere outside of the technical journals and the monographs—so much better, in fact, than can be found anywhere else in handy form—that one is willing to believe them models of their kind.

About two hundred and seventy illustrations are given, nearly all of which are photographic views, very well chosen as to the building and the point of view. There are a few plans of buildings and some of groups of buildings, and it might be wished that there were many more plans. The volume is a beautiful piece of bookmaking except for the glossy paper which American half-tone prints seem to require and for a very ill-designed cover.

The Writings on Art. By Anna Jameson; in five volumes. Volumes I. and II., Sacred and Legendary Art, pp. xlvi. and xv., 800. Volume III., Legends of the Monastic Orders. pp. xxvi., 467. Volume IV., Legends of the Madonna, pp. xxiii., 372, edited with additional notes by Estelle M. Hurll. Volume V., Memoirs of Early Italian Painters, pp. xxiii, 281. Thoroughly revised and in part rewritten by Estelle M. Hurll. Houghton, Mifflin & Co., 1896.

Mrs. Jameson's well-known books on subjects connected with painting consist in chief of Volumes I. to IV. of this series as they were in their original edition, which works, the authoress seems to have intended to call, by the common title "Sacred and Legendary Art;" each having meanwhile its special and separate title. The book contained in the fifth volume of this series has not been in very common use. It appeared many years ago; published first in a periodical of no critical value whatever and published in book form with few pretensions to thorough treatment either of the biographical or critical portions. Mrs. Jameson had not then any claim to be considered a specialist on matters connected with fine art nor indeed did she ever gain

much technical knowledge or much insight into art as it is known to artists and students of strongly artistic leanings. She was a writer of such semi-literary papers as "Social Life in Germany," "Characteristics of Shakespeare's Women" and the like, and when in 1845 this book on Italian painters appeared it was merely a sympathetic and affectionate essay upon a subject which the authoress knew little of. The new edition of this work, as stated in the editor's preface, contains a great deal of new matter, and has some part of the original text removed. Many editorial notes are also inserted and there are a large number of portraits, mainly reproduced from other books. The book will, of course, be found readable, but will be of little aid to students.

Very different is the case of the other works included in this set. Mrs. Jameson set herself seriously to describe the attributes of the sacred personages of the Roman Catholic Church in the middle ages and at the time of the Renaissance, and especially the manner of representing the different personages and their actions and the way in which one could be distinguished from another. No intimate knowledge of fine art was needed for such a study and her devotion, single mindedness and energy enabled her to produce these volumes in rapid succession between the years 1848 and 1852. Her own revision of the works in subsequent editions was not very extensive and she died in 1860, leaving some material for a further work on the same lines. Until now no revised edition has appeared. The present publication contains a number of emendations and editorial notes which have rather for their purpose the tracing of the whereabouts of the pictures referred to in the text. The main body of the work remains unaltered and indeed needs but little alteration as it is a very satisfactory and useful guide in the matter to which it especially relates; namely, the pictured legends of European painting from the fourteenth century down to the present time.

Catalogue of the Avery Architectural Library. A Memorial Library of Architecture, Archæology and Decorative Art. Library of Columbia College; New York, 1895. Octavo, pp. xii., 1,139.

This large and solid book is certainly as handsome a catalogue as has ever been issued. It has been printed from type by T. L. de Vinne & Co. on heavy and rough surfaced paper, and contains several appropriate illustrations. The cost of the printing and binding has been entirely borne by Mr. Avery. The introduction which states this last named fact relates also the cause of the foundation of the library. It is a memorial of Henry Ogden Avery, who died in New York in 1890, at the age of thirty-eight. His parents, Samuel P. Avery and Mary O. Avery, established the library, under consideration, in memory of their son. Their letter making the first offer of the gift and containing the conditions of it is dated June 23, 1890. From that time until the beginning of the year 1895, the purchases went on, and the library now contains about 13,000 volumes. It is hardly necessary to remind the reader that books devoted to architecture and decorative art are of a high average of cost and beauty. Folios are vastly more numerous than in any other departments of study and it is generally true that the books, large and small, are filled with illustrations. The Avery Library is rich in books of local archæology, some of which are of great rarity, and it is perhaps little known how much useful information is contained in books written by the village priest or some small proprietor, which books seldom see the world beyond their narrow country side. The library has many of the admitted rarities; those books which are quoted at high prices on catalogues of well-known dealers; the works of the artists of the Renaissance, of their successors in the seventeenth and eighteenth centuries and those of the designers of furniture and decorative detail. The stand-bys of our youth, the orthodox books of Britton, Billings, Carter, Stothard, Fisher, Street, Shaw, Nesfield and the other Englishmen, and of their French and other continental congeners are here perhaps in complete representation. These important departments are, however, less important than the one which contains the modern books of photographic illustration allied with drawings from accurate measurements. If the reader will consult these columns in No. 16 of the *Record* p. 512, he will see named three or four of the very costly books of this class, books which "no library should be without," but which no private library can have. It may be stated without indiscretion that the Avery Library was founded that it might offer to students the use of these same costly books. There are also books of almost equal importance and of considerable, though less prodigious cost, such are for instance those recently issued in Germany and consisting chiefly of large Heliogravure plates, but having

also a text of some value in which are inlaid trustworthy plans. The latest books are almost necessarily the best, and no library ought to exhaust its funds in purchasing the old authorities when the next season's list is sure to include books which will supersede them.

The purchases have been made in general by the committee of purchase named below, but Mr. Avery has bought largely himself and has very frequently sent in books which the committee would hardly have felt free to buy. Besides the funds needed for the purchase and binding of the books, Mr. and Mrs. Avery have given $25,000 as a fund to produce a permanent income, for periodicals, binding and the purchase of additional books.

A very complete catalogue has been made in duplicate, one set of the cards being kept by itself in the rooms devoted to the Avery Library, and the other arranged alphabetically with the general catalogue of the Columbia College Library. This card catalogue contains a very large number of subject entries. Not only the main subject of a considerable book has been thought worthy of entry but equally the subject of an article in a periodical or a paper included in the proceedings of a society. It was, however, decided when the printed catalogue was put in hand, to exclude from it these subject titles. Real completeness in such a matter is, of course, unattainable; there will always be some subjects or some titles or statements of subjects which the student will miss. Still it was thought that a certain approximate completeness should be reached, before that almost unknown thing, a subject catalogue in print should be undertaken, and it was felt that some months or years would elapse before such completeness could be assured. The volume before us, therefore, is arranged under titles and authors only.

The card catalogue has been prepared in the usual routine of Columbia College Library work, under the general direction of Mr. George H. Baker, the librarian. The heavy task of carrying the book through the press has been performed by Mr. C. A. Nelson. The Commission of Purchase for the books already obtained and those that are to come consists of the librarian, the professor of the department of architecture in Columbia College and the writer of the present notice.

The catalogue, forming a very handsome, thick, large octavo, has been placed on the book list of Messrs. Macmillan & Co. at the price of $10 00.

London City Churches. By A. E. Daniell. With numerous illustrations by Leonard Martin. New York: Charles Scribner's Sons, 1896.

The churches of London City, that is to say, of the small tract of ground between the Tower and the site of Temple Bar and between the Thames and Holborn were interesting enough to have been spared from wholesale destruction. No one can wonder at the wrath of Londoners, at the pulling down within a few years of eleven of those churches which were built by Sir Christopher Wren himself. The introduction of Mr. Daniell's book gives this number as having "fallen victims to the Union of City Benefices Act," and states that four others had been removed between 1781 and 1845, when the Royal Exchange was built. This introduction gives some other figures that are of importance. Eighty-six parish churches were either destroyed or much damaged in the fire of 1666; twenty-one escaped the fire, but of these only eight remain, which really are worth naming separately, as follows: All Hallows, Barking; S. Andrew, Undershaft; S. Bartholomew the Great, at West Smithfield; S. Ethelburge, Bishopsgate; S. Helen, Bishopsgate; S. Giles, Cripplegate; S. Olave, in Hart street, and S. Catherine, Cree. Of the parish churches destroyed in the fire thirty-five were never rebuilt, as the parishes were united two or even three into one, but forty-nine were rebuilt by Sir Christopher Wren. After Wren's time thirteen churches were built by Nicholas Hawksmoor and others, but two of these have been removed during the last few years. There is just a little confusion about these figures as in the case where S. Botolph, Bishopsgate, built by Wren, after the fire was rebuilt in 1725–29.

For the traveler visiting London City the old churches which remain for his examination seem very small, unimportant, unarchitectural. If he is fresh from the continent of Europe, the small size and peculiarly irregular and undignified planning and disposition of so many of the London examples are apt to repel him. Nor does a more thorough examination tend to increase the traveler's respect for the buildings as monuments of stately performance; the very abundance of imitation vaults of wood and plaster hung from wooden roofs goes to class these buildings in his mind with the feeble modern structures which he may have left behind him at home, and to separate them from the solid and worthy monuments of the "better days of art." Two classes of persons only can

be expected to study the London churches with care and interest; those who cherish every vestige of old London in the semi-historical, semi-artistic way of the modern student and those who are occupied in the study of architecture as a thing of tradition and academic teaching. The spirit of the former class finds embodiment in the valuable series, published by the Society of Photographing Relics of Old London. Those photographs are of absorbing interest; and so are the half-tones in this book representing S. Botolph, Bishopsgate, S. Botolph, Aldersgate, and S. Botolph, Aldgate, provided always you are not asking for pure and refined art nor for stately and monumental buildings, but are prepared to enjoy homely fitness and the time-worn associations of history. Among the photographs published by the society there are, as there are in this book, pictures of buildings which have architectural value. The little drawing on p. 265 of S. Michael, Wood Street, that of All Hallows, London Wall, p. 307, and that of S. Mary at Hill, p. 238; the half-tone of S. Alphage, London Wall, and that of S. Mary, Abchurch, p. 224, give instances of buildings which have some value as pieces of successful proportion. In mentioning these we have avoided interiors and have tried to avoid churches designed by Wren. Of Wren's own churches, such exteriors as those of S. Andrew by the Wardrobe p. 122, S. Andrew, Holborn, p. 126, Christ Church, Newgate Street, and S. Lawrence, Jewry, are worth much study as being the attempts of a very skillful, sagacious and many sided man to design inexpensive churches in a neo-classic style. If the architectural beginner feels a doubt about the architecture of Palladio applied to small and cheap churches, he may study those above named and also S. Magnus, London Bridge, and S. Mary le Bow. Attempts at a somewhat freer treatment of classical architecture are to be seen in S. Nicolas, Cole Abbey, and S. Mary the Virgin; perhaps also All Hallows, London Wall.

As to the interiors they are spoiled for serious study by repeated alterations and restorations and also by their inferior material putting on the forms of solid masonry. No student ought to sketch or measure an interior built up and boxed out with panelllng and plastering, because it will mislead him dreadfully as to what is feasible and what is beyond his reach when he himself comes to build. Thus in the print opposite p. 142, if we assume that the vaulted roof of S. Bride, Fleetstreet, is lath and plaster, we have in it an instance of a trap laid for the youthful architect who might well be trying to turn real vaults of similar proportions on solid supports like these. Among the churches of recent times, there are some whose interiors really are attractive, namely, those with flat ceilings like S. Lawrence, Jewry, and in a different form S. Mary, Woolnoth. And finally a word must be said of the churches which remain from the years before the fire of which this book, we think, possesses the best record easy of access. Such churches are All Hallows, Barking, and S. Giles Cripplegate, and especially S. Helen, Bishopsgate, all three late Gothic and the last named of peculiar value; S. Bartholomew the Great, which is really an important piece of Romanesque architecture, and S. Catherine, Cree, built in 1631 in a mixed style, and with a plan well worthy of study.

The book before us is a piece of careful and loving study containing a great deal of valuable information made available by two full indices.

The Art of Velasquez. By R. A. M. Stevenson, London: George Bell & Sons. New York: Macmillan & Co. 1895. 4to., pp. ix., 123. Ten photo-gravures and forty-three full page half-tones.

This remarkable book is to be considered in two lights. It is two books as different as possible each from the other; as different, that is to say, as two books on the same subject can be. In the first place it is to be regarded as illustrative of Carl Justi's epoch-making work on Velasquez. The first three chapters deal with Velasquez himself, his life, his surroundings, the display of his paintings in Spain and elsewhere, and what the paintings themselves show of the changes in his art as he grew older. The very numerous large pictures are to be considered, in the first place, as illustrative of this part of the work. It is true that they are not always referred to in the text as to their placing in the volume and that one's penciled reference on the margin is called for; but there can be no mistake as to the pictures described and criticised, and text and plates together give what Justi's celebrated work could not give. In this respect too the book is a picture gallery, containing as it does fifty-one pictures from the Prado Museum at Madrid, of which seventeen are photo-gravures of as good quality perhaps, and of as great brilliancy as untouched negatives can give, the dark old pictures refusing of course to give up all their secrets. Both these and the half-tones are entirely trustworthy, and it is hard to say whether the portraits or the pictures presenting groups of men and varied

action are the more attractive. Photographic prints from these Madrid pictures can be got of Laurent, no doubt, but they are no better than those which are offered the reader here. One fancies, following the writer's thought as expressed on p. 17, that even these dark reproductions confirm what he says of the relative value of pictures mentioned, and that The Spinners is shown indeed to be the equal of any picture in the world. Beside the Prado pictures, there are five from the National Gallery in London, including that marvelous portrait of Philip IV. as an old man which is to be compared with an almost exactly similar portrait in the Madrid collection; this also contained in Mr. Stevenson's book. There are also three admirable pictures of the Louvre Museum, one in the Dulwich Gallery and one or two selected from those in private hands for access to which the reader has double reason to be grateful. The photo-gravure of the head of the Madrid "Æsop" on a large scale, to be compared with the half-tone No. 38, which gives the picture in full, is something to be especially observed. The exceptional composition, The Coronation of the Virgin, is also to be noted as wholly out of keeping with other works of Velasquez which make up his noble reputation. The few words given to it on p. 68 are all that it needs to properly characterize it.

In the second place this book is a treatise on painting, in which the art of Velasquez is taken as the highest known achievement of man in the direction of pure pictorial fine art as distinguished from story telling or appeals to literary, social or religious sentiment. The writer is, one may say, eager to explain that he has not here said the last word about Velasquez; that the influence of Velasquez upon art is still young, that few persons other than painters enjoy Velasquez, or "rightly estimate his true position in the history of art," that he, the writer, does not pretend to have settled his own opinions about Velasquez. There are, however, it appears, certain general principles of art, concerning which, the writer has reached a definite conclusion. He has thought much about painting and has satisfied himself that "the true artist's thought is of his material (let us say, in this case, oil painting) of its beauties, of its limitations, of its propriety to the task proposed;" that the modern idealist who seems to hate matter, the visible, the real and craves the spiritual and non-material has no business to choose "painting or sculpture, the most material, the most tied to representation of the arts." In the work of Velasquez Mr. Stevenson finds no base reality, and he finds confirmation in that body of painting of the truth that "the common place lies only in the method of a mean, a small and inartistic eye. It was not only his immediate subjects, but the whole art of seeing that Velasquez dignified in his paintings."

There are passages, pages long in this work which are strictly essays on the art of painting as our author understands it, but these are wrought into the body of the criticism on Velasquez, which makes up the whole work from p. 37 to the close. It is not at a time when the work of Edouard Manet, Claude Monet and Hilaire Degas has become well known to the frequenter of picture galleries, that anything in the nature of a sneer is to be feared when impressionism is named. The art of putting upon canvas the painter's view of nature or, in other words, the impression which nature makes upon him is the oldest of arts, and it would have frightened no one thirty years ago to have said that this art was impressionistic. Twenty years ago the noun and the adjective had become terms of scorn and loathing in the mouths of most writers and talkers about art, at least in the English speaking world. Now that epoch in its turn has passed; the word impressionism has taken on a new and more limited meaning in addition to its older and more general meaning, but it is no longer a term of reproach, except with those who talk about pictures without looking at them. Therefore it is that Mr. Stevenson is able to give up the whole of his tenth chapter to a study of impressionism; and that without fear of misunderstanding by those whom he would wish to have understand. Velasquez, he finds, is that master whose work contains realism in its highest sense and impressionism in the form in which a very great artist alone can give it. Velasquez, he finds, is the man whom the modern world needs the most to study; for having fairly talked out the subject of painting as seen on Italian canvases it should now go to this, the latest of the great masters and the one who, the most of all, worked without the control of irresistible tradition. The book is so interesting that the reviewer who writes under the influence of its first perusal must be careful lest an undue expression of enthusiastic approval should commit him to a too complete acceptance of all the conclusions drawn by the author.

Russell Sturgis.

Motive Powers and their Practical Selection. By Reginald Bolton. New York: Longmans, Green & Co. pp. 257.

Egyptian Decorative Art. A course of lectures delivered at The Royal Institution. By W. M. Flinders Petrie, D. C. L. New York: G. P. Putnam's Sons. pp. 128.

A Guide to the Paintings of Venice. Being an historical and critical account of all the pictures in Venice, etc. By Karl Karoly. London: George Bell & Sons. New York: 66 Fifth Av., Macmillan & Co. pp. xxvii, 278. $1.50.

Modern Illustration. By Joseph Pennell. London: George Bell & Sons. New York: 66 Fifth Av. Macmillan & Co. pp. xxv, 124.

Painting, Sculpture and Architecture as Representative Arts. An essay in comparative æsthetics. By George Lansing Raymond, L. L. D. New York: G. P. Putnam's Sons. pp. xxxiv, 431. $2.50.

Mechanical Drawing. A manual for teachers and students. By Anson K. Cross. Boston. Ginn & Co. pp. iv, 197. $1.

Principles of Architectural Perspective. By William H. Lawrence. Boston; Alfred Mudge & Son. pp. iii, 42, with plates.

From the Black Sea through Persia and India. By Edwin Lord Weeks. New York: Harper & Brothers. pp. xii, 437.

Evolution in Art. As illustrated by the life histories of designs. By Alfred C. Haddon. New York: Charles Scribner's Sons. pp. xviii, 364.

A CORRECTION.

We regret that the illustration of the interior of the "Chapel of the Good Shepherd," Blackwell's Island published on page 320, in the last number of this magazine, was not credited to Messrs. Withers & Dickson, the architects who designed that scholarly and charming piece of work.

EDITOR ARCHITECTURAL RECORD.

Technical Department.

A GREAT BUILDING FIRM.

AS our building operations become more expensive year by year it will be evident that new agencies must be employed to render them more effective. Only a few years ago the construction of a million dollar building was regarded as a great undertaking; but now buildings to cost several millions are frequently projected and carried to completion, and the same resources that constructed the lower cost building would not prove effective when applied to the higher priced structures. To work effectively more perfect mechanical appliances are required, a greater number of men are demanded, and there must be a more highly developed system in operating.

It follows on this change that great building operations are falling more and more into the hands of a few great firms—that have the reputation and the resources to meet the demand. Builders of limited means will always, of course, continue to work in a small way, and find their contracts among men of comparatively limited resources; but the great builders must serve the great capitalists, and we must expect to see a still greater consolidation of the building industry than we have yet seen. Large as we now find the cost of some of our building operations, it does not compare with the costliness of the structures which will be witnessed in a few years more.

Mr. Andrew J. Robinson, under the firm name of Robinson & Wallace, has been engaged in putting up buildings in this city for a period of over twenty-five years. During that time the firm has constructed some of the most notable structures erected in New York. Among the number are the six buildings of St. Luke's Hospital, which are built of granite, Georgia marble and buff brick; a residence on Fifth avenue for Mr. H. O. Havemeyer; a marble front residence for James P. Kernochan and a residence for John H. Inman, both of the latter on Fifth avenue. The firm is also constructing for Mr. H. O. Havemeyer a twelve-story building on the site of the old Metropolitan Hotel, Broadway and Prince street, and a twenty-six-story building on the old Herald Office site, Broadway and Ann street. The latter building will rise more than 300 feet above the level of Broadway, and at that elevation it will dominate above everything in New York, every building at least not furnished with a tower.

Not the least remarkable thing about the latter building will be the evidence which it furnishes of the rapid building changes in New York. Had the elder Bennett been told when he was planning his marble printing house, and investing a large fortune in its construction, that only a little more than a quarter of a century would pass before it would be torn down to give place to a twenty-six-story sky-scraper, he would have thought the man who ventured the prediction a lunatic. Yet it would have been true; and men who wondered at the cost and magnificence of the Herald Building when it was new will live to wonder at the startling altitude and magnificence of the architectural shape that rises in its place.

This building will be remarkable for something else besides its enormous elevation. It is to have a movable foundation. This will not rest on piles, nor go down to bed rock, as has been the custom

heretofore in the construction of large buildings. At a depth of about thirty-two feet below the curb good sand is found, on which the foundations will rest. The entire area of the building is covered by several tiers of riveted steel girders, forming a crib work, and the whole embedded in Portland cement concrete, which makes a compact, solid mass eleven feet in thickness. Under each of the forty-nine columns will be placed a hydraulic pump, by means of which any column which may happen to settle can be raised to its proper level' thus keeping the building perfectly plumb at all times, not only while it is in process of construction but after it is completed. This is a novel idea in architectural engineering and one which it is said the Eiffel Tower in part illustrated, but which has not been applied in any building intended for living or business purposes. It recalls the process through which Chicago many years ago was lifted from its low level and placed on higher ground. This plan greatly cheapens the cost of construction and also effects a considerable saving in time.

Robinson & Wallace pride themselves very justly on the promptness with which they execute any work for which they take a contract. As an example of quick building they point to the three-story and basement fire-proof structure just completed, at No. 42 Cedar street, for the Continental Fire Insurance Company.

This building is in every way a good example of first-class work; yet, within twelve weeks after the contract was signed, the building was completed and ready for the use of tenants, although the work comprehended the removal of the old buildings, the excavation of the cellar and the shoring and underpinning of the adjoining buildings. It would be difficult to surpass this record for dispatch; and it offers a recommendation for the firm which capitalists investing large sums of money in building operations will be ready to appreciate. Much money is lost each year by delays in construction, and, all other things being equal, the builder who is most prompt in the execution of his work is the most desirable builder to employ. The twelve-story office building for the Fidelity and Casualty Company, at Cedar and Church streets, a very costly structure, was built by Robinson & Wallace in a period of less than ten months, without night work, though the work was delayed about seven weeks by a strike. But of course such promptness in execution demands resources as well as drive, and this is another reason why the firm is trustworthy. They are able to do everything that they undertake both promptly and well.

Mr. Robinson was greatly interested in the ideas elaborated in the system of sewerage operated under the West patents, and put in that system for Atlantic City, and afterward, by a process of reorganization, acquired title to the whole plant. It comprises more than forty miles of mains and is connected with about three thousand houses and hotels. A well on the outskirts of the town receives the sewage through the principle of gravitation, and from there it is pumped to filter beds about two miles out on the meadows, where it is subjected to a process of filtration. The pumping capacity of the plant is equal to twelve million gallons a day

JAMES BAKER SMITH.

JAMES BAKER SMITH is a typical American business man—the successful business man who has been engaged from his youth up in wrestling with the hard problems of life and always managing to solve them to his own satisfaction; a man full of enterprise, of untiring activity, quick to see openings and to avail himself of opportunities; a man who is never at fault when his affairs approach that tide that taken at flood leads on to fortune, and what is as precious—the confidence of the public and the esteem of his business acquaintance.

The men who have been actively engaged in building during the last period of about a half a century are very few in number, but their work, consecutively reviewed, shows very vividly the improvements that have been made, both in artistic merit, in the styles of buildings erected and the immense advance made in the methods of constructions as a necessary result of the changes that have occurred from year to year. It is as true of industrial as of political revolution that new men come to the front and old ones are forced into the background, and it is saying a good deal for the few who are equal to holding their own in the period of fierce competition, and who not only hold their own in the eager strife that change engenders, but keep up with the bright and ambitious spirits that find their opportunity only in times of excitement.

James Baker Smith is one of these few. He not only was a prominent builder before the war, but he became more prominent after it, and is a prominent builder to-day. His success is due, as we shall show, to his ability to adapt himself to changing conditions and to make the most of them in the pursuit of a laudable ambition. His connection with the building trade of New York City began away back in the forties, even somewhat before the world went wild over the discovery of gold in California. When that tremendous rush West began Mr. Smith was learning the trade with the best known firm of builders of that day. What he learned may be judged from the buildings that were then characteristic of New York; what he had to learn can be conceived by comparing these buildings with those that have been erected in the last ten years. He was not quite twenty-one years old when he entered into partnership with the firm he had served, during his days of tuition and within the next five years he had erected numerous buildings of the classes then in vogue. If the buildings of that day were, as a rule, architecturally unpretentious, they were, however, soundly constructed and of substantial strength. Leaving out many unimportant ones, we may say that Mr. Smith built in this period of his business life the famous dry-goods stores for H. B. Claflin & Co. and for Bowen & McNamee. Stores in the swamp for Mr. Loring Andrews as well as Mr. Andrews' fine dwelling on 5th avenne. Also dwellings for Judge Edwards Pierrepont, Dr. Peckham, Thos. H. Faile, Mr. Burnham, Wm. F. Carey, W. H. Butterworth, Mr. Mortimore, Griffith Thomas and Dr. Delafield, all located on 5th avenue.

In the midst of the activity that a large business forced upon him, Mr. Smith found in 1860 that rest and relaxation from the cares that pressed upon him were absolutely necessary. At that time the Bahaman Government was advertising for plans for the erection of a large hotel at Nassau. This seemed to Mr. Smith a good opportunity for obtaining the respite he needed, and he submitted plans and estimates. Negotiations followed, and he finally undertook to build the hotel, thinking his work at Nassau would be completed in a winter and that it was better to take his recreation in the form of new work in another and more genial climate than to secure rest in complete idleness, which would soon become irksome to an active disposition. No doubt he was quite right, but his absence was to endure much beyond the limited period he had set; in fact, instead of one he spent six winters at Nassau. The people there evidently knew a good man when they met one. Mr. Smith built the hotel "The Royal Victoria," but he had hardly

begun upon it when he was beset on all sides to undertake the most extensive projects. The amount and nature of the work he did at Nassau and in its vicinity in these six years is a very striking testimony to his resources and ability. To summarize, this work consisted of: For the Home Government, building light-houses in the vicinity; for the colony, planning and building the large new prison, the stone wharfs, bulkheads, etc., for the water front, and also for regulating the streets and walks; for private parties, the erection of dwellings, ware houses, a theatre, and others too numerous to mention.

The fame of New York attracts people who have never seen it, with those who have lived in it and have gone from it the desire to return is irresistible, especially when they have found success there and are confident of doing so again. At the end of his six years' exile, Mr. Smith, in spite of the esteem and favor in which he was held at Nassau, found that he could no longer stay away from the scenes of his youth and his first triumphs in business, and he returned to New York, in better physical health than he had ever enjoyed before, with an enlarged experience, to take position among the pioneers of reconstruction who have since changed the face of the city beyond recognition by those who knew it only in ante-bellum days. The most important work with which his name is identified at this time was the Equitable Building at the corner of Broadway and Cedar street, which was the most notable commercial building in the city for some time. No better testimony can be given of his ability and the confidence owners had in his powers of organization than to state the fact that he was given entire control of the construction of this building by Mr. Hyde, the president of the Equitable Life Assurance Society, and the architect of the building. This was decidedly a professional triumph for a man comparatively young and a proof of the sterling qualities of his work. From this time on he was entrusted with the construction of one important building after another. A complete list of his work is beyond our scope or space. Its chief items are: The Morse Building, considered more perfectly fire-proof than any other commercial building in the city; Roosevelt Hospital, New York Hospital and additions, three Western Union Telegraph Co.'s buildings, Wells Building, Ditson Building, residence of Mr. Cornelius Vanderbilt, American Bank Building with its safe deposit vaults, Smith Building, Consolidated Stock and Petroleum Exchange, four additions to the Museum of Natural History, New York Athletic Clubhouse, Young Women's Christian Association Building, Railroad Men's Building for Mr. C. Vanderbilt, 138th Street Railroad Station, Freundschaft Clubhouse, Bar Association Building, Lithograph Co.'s Building, 4th avenue and 19th street, Adams Express Co.'s Building, 4th avenue, 48th to 49th street, and Columbia College Chemistry and Engineering buildings.

Besides this extensive constructural work, Mr. Smith has made a specialty of other that calls for no little engineering knowledge and skill, the reinforcing of heavy structures that have become dangerous or weakened from failure of their foundations, overloading or from other causes. To do this work efficiently requires more inventiveness and resource than to erect a building on cleared ground. The problems here involved are often very puzzling, but it need hardly be pointed out that a man, who in the course of a period of six years built theatres, hotels and light-houses is more likely to be fascinated than daunted by such tasks and is sure to find the right solutions. Two of Mr. Smith's undertakings in this line were the rebuilding of the foundations of the Cooper Union Building under the direction of Mr. Leopold Eidlitz and the Hon. Edward Cooper, and the carrying of the eight-story fire-proof Plaza Hotel on shores and renewing its foundations under the direction of Messrs. McKim, Mead & White. That they were carried out to an eminently satisfactory finish shows his skill, and their mention very fittingly closes a notice of the work of an energetic, skillful and versatile constructor.

CHARLES T. WILLS.

A MERE enumeration of the numbers of churches, palatial residences, office buildings and factories that have been recently added to New York City, or have taken the places of others that had ceased to meet the requirements of the times, would alone create surprise. These represent, not merely a vast expenditure of money, though the pecuniary feature is not without its astonishing side, but, what is much more to be prized, a growth of artistic feeling in our midst, an engineering capacity previously undreamt of, and an organizing ability that, judged from what it has already achieved, is without limit. New York City, as it stands to-day, is the work of men possessing all these attributes, so that no one can doubt that in her architects, engineers and builders New York possesses a body of very remarkable men, who are capable of continuing the work that has been begun, and of meeting the demands that will come year by year as the population, wealth and commerce of the city continue to increase.

Among the men who have taken a place in this rank of honor is the well-known builder, Mr. Charles T. Wills, who, though still a young man, has carried out a surprising number of important contracts, including the finest office buildings, club houses, railway depots, residences, apartment houses, churches, factories and theatres extant, and who to-day has many large contracts on hand for office buildings particularly. Mr. Wills was born near the close of the year 1851, in this city. His father, Chalkley J. Wills, was also a builder, but his son learned his trade with John T. Conover, one of the best known of the old-time builders of New York City, and by whom Charles T. Wills was early put in charge of important work. In the care and attention he then displayed, in the studious contemplation of every difficulty that he encountered, and his ingenuity in overcoming them, can be seen the causes of his present success. From his prentice days he has had a liking for the more serious problems of the structural art, and his ability to overcome obstacles that would be the despair of less able men, has secured him the favor and liking of the most prominent architects. It need not be said that a low bid is not the only requisite for obtaining a large building contract. No bung'ing or bunglers are wanted in such a work. The class of buildings that is erected in this city to-day is so different from any that were put up ten years ago that each one presents a new and individual problem. Hence it requires that the contractor shall be not only a man of unquestioned financial responsibility, but also one of superior organizing powers and fertility of resource to meet the difficulties that are sure to arise, and, for the reason previously given, cannot be foreseen.

We shall not attempt to describe all the work that Mr. Wills has done in the course of his career, or do more than allude to the most important of his contracts. It should be stated, however, before going farther, that Mr. Wills in the year 1879 entered into partnership with George Sinclair, and they carried on business as contractors and builders under the firm name of Sinclair & Wills for five years. At the end of this period the partnership was dissolved and Mr. Wills concluded

to "go it alone," a conclusion with which he has evidently every reason to be satisfied, because he is one of the most successful and leading builders of the city, and still does it. The work with which Mr. Wills' name will undoubtedly be best known in the future are the great office and other buildings he has put up in recent years, and in regard to each of which a story of intense interest to the building trade could be told. The Presbyterian Building on the corner of 5th avenue and 20th street, where he now has his offices, and completed on time in spite of delays through strikes, is his work. He was selected by the philanthropic founder of the Charities Building, corner 4th avenue and 22d street, to erect that important structure. The Scribner Building, Nos. 151, 153 and 155 5th avenue, was another of his contracts. In this instance the foundations presented an interesting problem, which was solved by employing the grillage system, for the first time in this city. He built the American Fine Arts Building on West 67th street, and the Vanderbilt Building, Nos. 15–19 Beekman street. The American Surety Building, corner of Broadway and Pine street, is one of his late undertakings. This building represents about all the difficulties a builder can encounter. Not only was it necessary to go down to rock for the foundations, but owing to the extent of the office space and the height of the building, the question of keeping the elevator space as limited as possible, yet ample for the service of the building, was a most difficult one, and it has been solved most satisfactorily. Few, too, can comprehend the amount of thought and ingenuity necessary to put into place the thousands of tons of bulky material that this building contains as it was received, because owing to the location of the site it was not possible to store any outside the work. The Johnson Building on the corner of Broad street and Exchange place, and the new building of the New York Life Insurance Company, have recently been completed by Mr. Wills, and he has contracted for the Bank of Commerce Building, on the corner of Nassau and Cedar streets, and the twenty-story building that is to be erected on the corner of Wall and Nassau streets by the Gillander estate, and which is to be the most sumptuous and complete office building in the city. The estate has a superb site, and will spare no expense in its improvement.

Of work in other classes carried to successful completion by this eminent builder, we may mention the handsome and complete Montauk Club House, Brooklyn; the Central Railroad of New Jersey's fine depot, at Jersey City; the new palatial Astor residence at 5th avenue and 65th street, one of the very finest in the city; Geo. F. Baker's residence, Nos. 256 and 258 Madison avenue; the Yosemite and Adelaide Apartment Houses, the first on 4th avenue and 62d street, and the second on the same avenue and 66th street; the Judson Memorial Church and buildings on Washington square, the Brooklyn Tabernacle, and of factories, Huyler's, American Bank Note Company's Building, Clark's Mile End Thread factory, and that of the Gorham Silver Company. Among his numerous new contracts we must not forget the building to be erected on the corner of 25th street and Broadway by the Townsend estate, which is to far outdo anything of its kind in that portion of the city, and will be an addition of which New York may be proud, notwithstanding the great improvements that have been made in structural appearances of late years. These undertakings not only show the extent of Mr. Wills' operations, but also the superiority of his work and the extraordinary range of ability he displays in it.

MODERN STONEWORK.

DEVELOPMENT is never a single process. Advancement in one line demands a corresponding advance in other lines, and the history of building for the last twenty-five years affords a particularly instructive example of the fact. The invention of the elevator, the adoption of fire-proof materials, the introduction of the skeleton construction do not stand as so many isolated facts, but are, on the contrary, so many points of departure for the entire building craft. Each innovation has affected, more or less, nearly every department of the business.

It is scarcely necessary to illustrate this. Even to the ordinary observer the immense consequences which, for instance, the skeleton system of construction has had upon building conditions are obvious. Not only has it rendered buildings of great altitude possible, which, of course, has revolutionized building machinery and methods, but it has made the element of precision and accuracy in preparing the materials of which buildings are constructed, and assembling them together a matter of the utmost importance. A modern office building contains some ten thousand tons of material, all of which has to be gathered from the four quarters of the country, predestined and definitely allotted to a specific spot, so that at the right moment every stone, piece of terra cotta and so forth will fit promptly into its place in the rising edifice. The construction of a large building resembles the mobilization of an army more than anything else. Ultimate success depends upon the thoroughness with which the several departments (or, in the case of building, the several auxiliaries of the main contractor) do their work.

An interesting series of chapters will some day be written concerning the changes brought about by modern requirements in the several building trades. Probably in none have the changes been so extensive as in the mode of working stone. Even in the last ten years the advancement in methods has been very marked. Indeed, the stone business has been almost revolutionized by the introduction of machinery. A few years ago very little machinery of any kind was used in the dressing of stone. If primitive methods were not exactly in vogue, the appliances that *were* used were entirely inadequate for modern requirements. The introduction of machinery was absolutely necessary if the large modern office buildings, made possible by skeleton construction, were to be put together in the short time allowed by financial and other circumstances. One by one the old, tedious hand processes were displaced, and for them was substituted the rapid work of the machine, until to-day we have "steam stone works," a title which indicates clearly enough the triumph of modern power in this industry.

The large stone works of to-day is a very different affair from the old yard of ten or fifteen years ago. It is now completely under the sway of steam. Machinery does everything. Indeed, under present

conditions, it is only by extensive plants and by the investment of large amounts of capital that it is possible to meet modern building requirements. There are few such concerns in the country. In the East there are some fully equipped granite and marble enterprises, but in the freestone cutting industry the largest plant in existence is in New York City—that of B. A. & G. N. Williams, Jr., at the corner of Avenue A and Sixty-eighth street. It occupies over thirty city lots, where a very large number of men are kept busy continually with the aid of the most modern machinery. Large as these facilities are, they are insufficient to meet requirements, and the firm is just completing an extension to their works which will nearly double their capacity.

This firm has done some of the most notable work in their line in the city. Conspicuous among the buildings intrusted to them are such as the Constable Building, Presbyterian Building, Corn Exchange Bank, Manhattan Hotel, Holland House, Hotel Savoy, Church of St. Mary the Virgin, Residence of Chas. T. Yerkes, Broadway Cable Company's Building and many others.

Among the latest buildings secured by this concern is the splendid structure, the Bar Association Building, Forty-third and Forty-fourth streets, which is illustrated in this number in the article dealing with the works of Cyrus L. W. Eidlitz. This is one of the finest of modern buildings in the metropolis, and will be for years one of the chief ornaments of New York City. Mr. Eidlitz's design has attracted a great deal of attention from the happy way in which the architect has employed classical motives in a modern building. The entire fronts on both streets are of Indiana limestone. The vestibule of the Forty-fourth street entrance, which is a noble apartment, is finished in Tuckahoe marble. On the third floor is the library, which has received so much attention because of its ample dimensions and its monumental character. Two handsome granite colonnades divide the room into three aisles. The bases and capitals of this colonnade are of South Dover marble. The capitals are handsomely carved and add greatly to the artistic features of the room. Immediately above this is the architrave, which extends entirely around the room, which, together with the mantels on either side of the room, is of Indiana limestone. The effect of the stonework in this room is admirable, and very great credit has been given to Messrs. Williams for the manner in which they have carried out the work entrusted to them and assisted in successfully realizing the architect's idea.

AN HISTORIC FIRM.

NO name is more intimately, more *historically*, connected with the building art in the metropolis than that of Eidlitz. The founders of the name in America were Leopold and Marc Eidlitz, and it is worthy of note that every male member of the family for two generations has been intimately connected with architecture or building in some form. Marc Eidlitz was born in Prague, Bohemia, in 1826, and attended the common schools of his native land until he was twelve years old and circumstances forced him to look about for a livelihood, as well as a career. It was not, however, until he was twenty-one that he determined to seek his fortune in the United States. In 1847 he arrived on these shores, and having decided to enter the building trade, he undertook, despite his age, to apprentice himself to a mason builder for a term of four years, that he might acquire a general proficiency in the craft.

He began to rise rapidly. Before the end of his apprenticeship he had been advanced to the position of foreman, and in 1854 he commenced business on his own account.

From that year onward the firm has been closely connected with the development of the building trade in this country and has an experience which is unique.

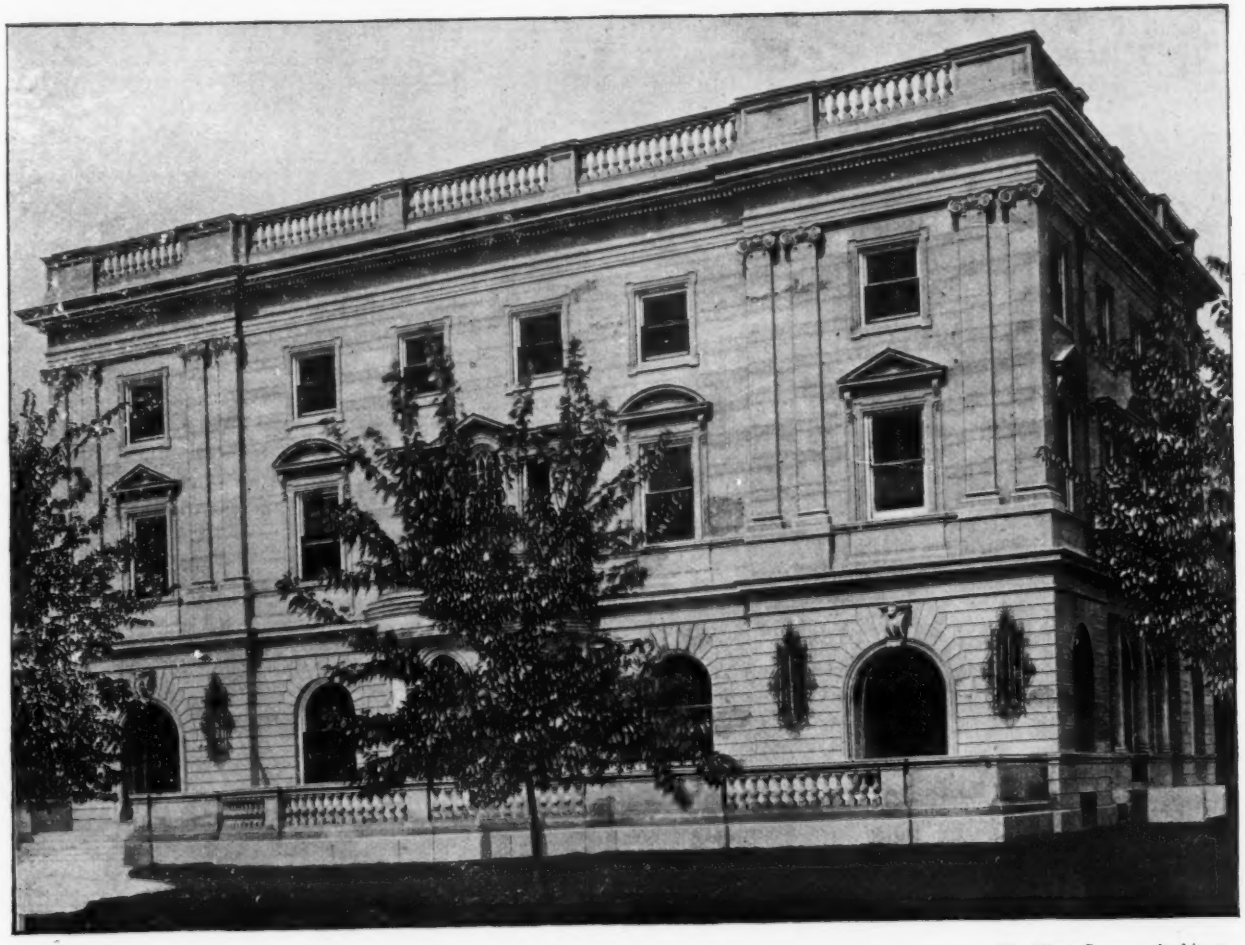
It has always been the principle of Marc Eidlitz & Son that cheap work and good work could not be synonymous, they have therefore never been identified with the inferior grades of building. Their name as contractors of a building is a guarantee that it is of the first quality.

Every kind of structure has been confided to their care, and the firm has been called upon to assist in solving many of the radical problems which have been met in the remarkable evolution of building in the last forty years. Even a partial list of the large number of buildings which the firm has erected shows how great has been its activity and how general has been the confidence bestowed upon it. The Broadway Tabernacle, begun in 1857, was one of the first buildings constructed by Mr. Marc Eidlitz, and was followed by the Church of the Incarnation, Temple Emanu-el, St. Thomas' Church and Parish House at Mamaroneck, St. Gabriel's Church and Rectory, New Rochelle; St. George's Clergy House, Home of the Sisters of Bon Secours, the principal buildings of the Presbyterian Hospital, St.

Vincent's Hospital, German Hospital, Womens' Hospital, St. Francis' Hospital, the German Dispensary, New York Eye and Ear Infirmary, Isabella Heimath, Loomis Laboratory; Lancashire and Eagle Fire Insurance Companies' buildings, the Gallatin National Bank, National Shoe and Leather Bank, Seamens' Savings Bank, Bank for Savings, Metropolitan Opera House, Eden Musée, Steinway Hall, new part of Astor Library, Deutsche-Verein, Harmonie Society, Astor Building, Schermerhorn Building, Roosevelt Building, Black Building, Western Electric Building, Manhattan Storage and Warehouse Company's Building; the stores of Messrs. Arnold, Constable & Co., Lord & Taylor, Park & Tilford, Le Boutillier Brothers, Mitchell Vance Company, Scott & Bowne; the residences of Ogden Goelet, Isaac Stern, Robert L. Stewart, J. Pierpont Morgan and Peter Doelger, New York City; James M. Constable, at Mamaroneck, and Adrian Iselin, Jr., at New Rochelle. This list does not exhaust even the larger work. The firm to-day has in the course of erection among other buildings the following: The New York Clearing House, The Hotel Manhattan, The Roosevelt Hospital and the stores of Messrs. B. Altman & Co.

We have spoken so far chiefly of the personality of Mr. Marc Eidlitz, but in glancing through the foregoing list it will occur to many who are familiar with the fact that Mr. Eidlitz practically retired in 1888, that a great deal of the later, more costly and more important work was not directed by him. Mr. Otto M. Eidlitz is now the head of the house. He has been prominent in its affairs since 1884. Mr. Eidlitz is a civil engineer by profession and education, and his expert knowledge has been particularly valuable in the supervision of the heavy structures which the firm has erected of late years. Associated with his brother is Mr. Robert James Eidlitz, educated as an architect at the Royal Polytechnic, Berlin.

Expert knowledge of the highest kind is now absolutely necessary in the building craft. The builder of to-day ranks with the engineer and the architect, and the rapid displacement of the badly instructed artisan by the modern expert establishes more firmly, if possible, the prestige and position of a house like that of Marc Eidlitz & Son.



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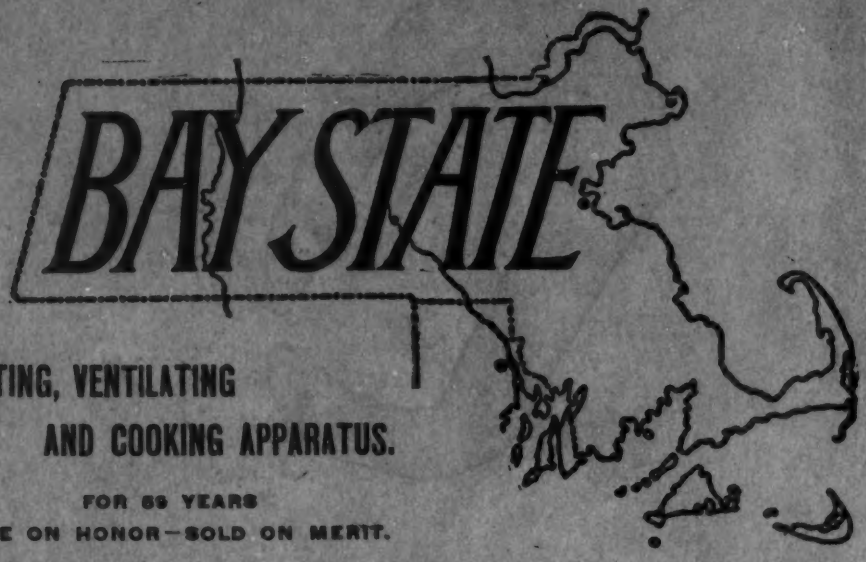

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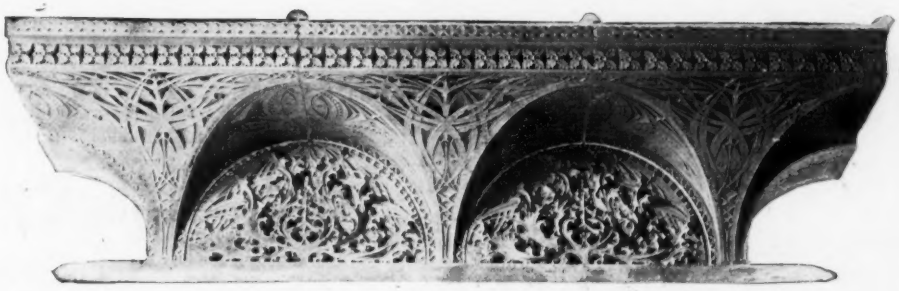

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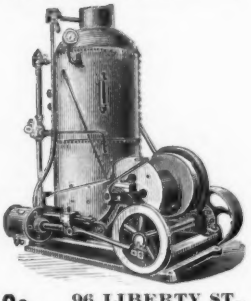

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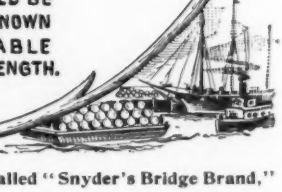

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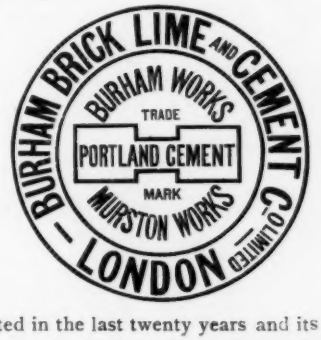

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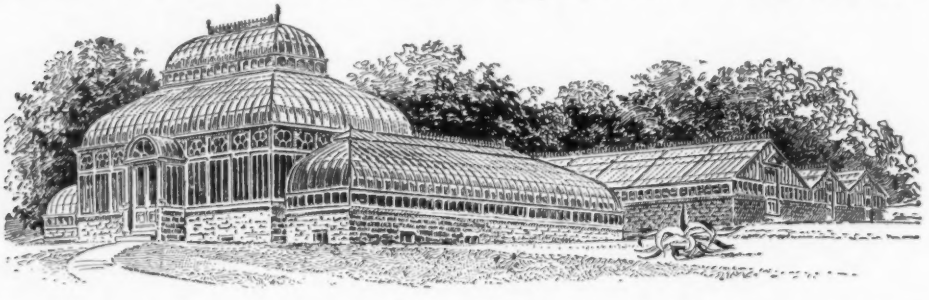

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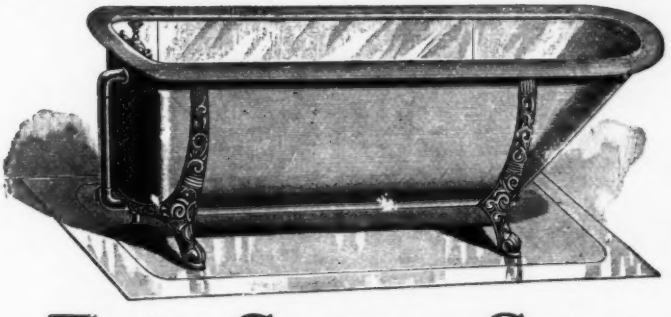

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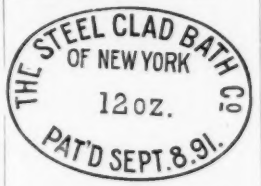

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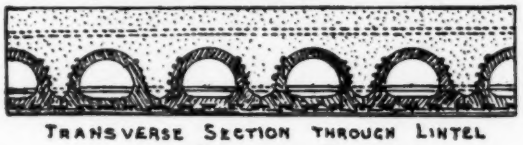

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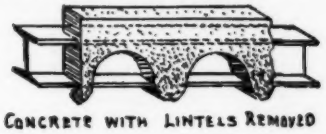
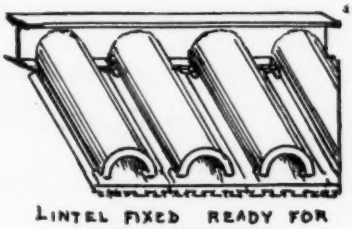


CONCRETE WITH LINTELS REMOVED



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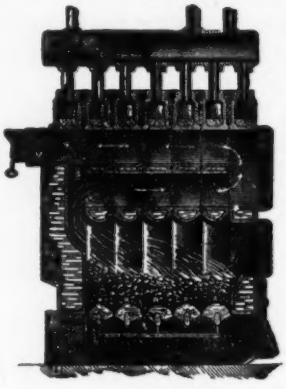

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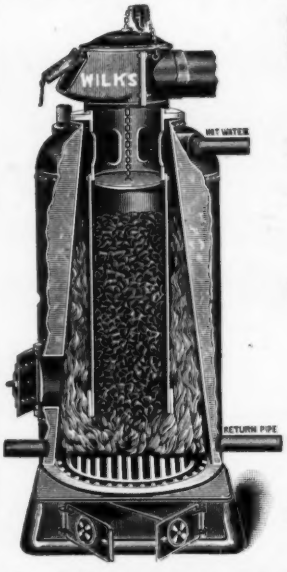

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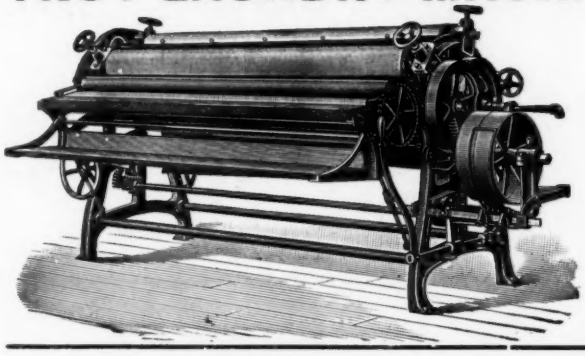

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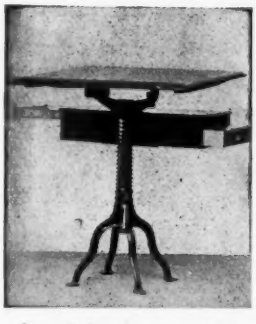

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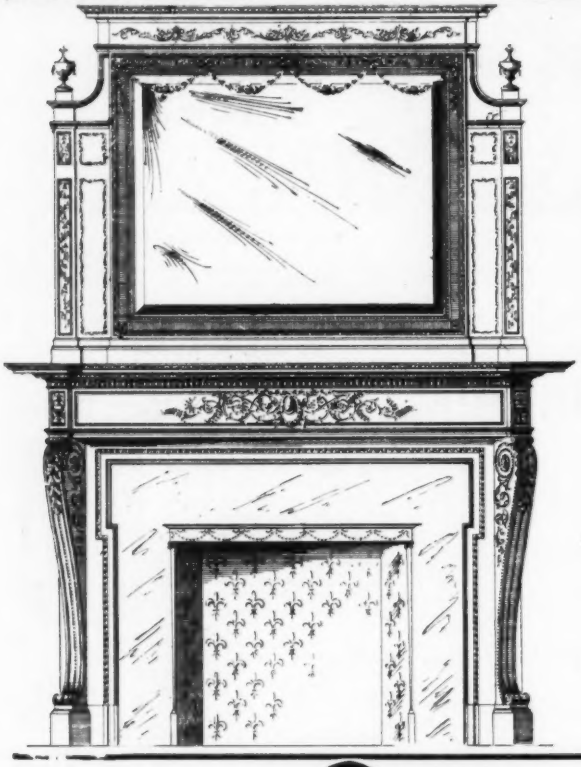

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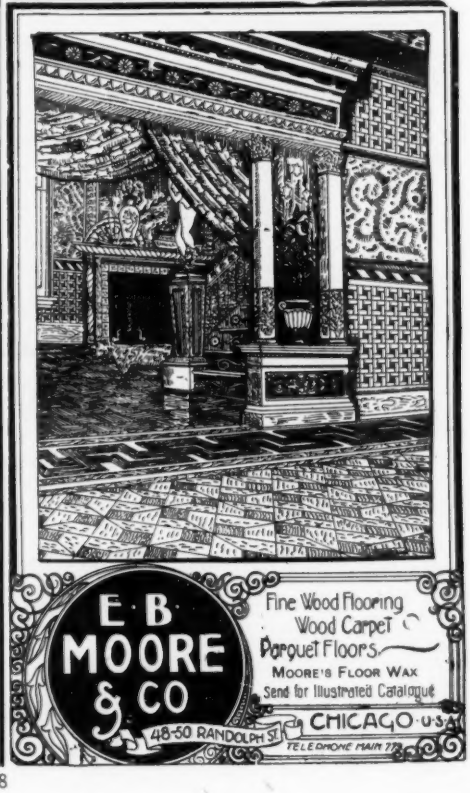

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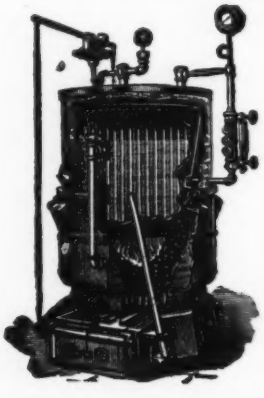

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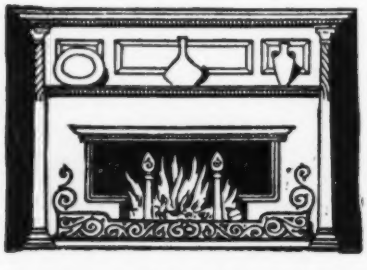

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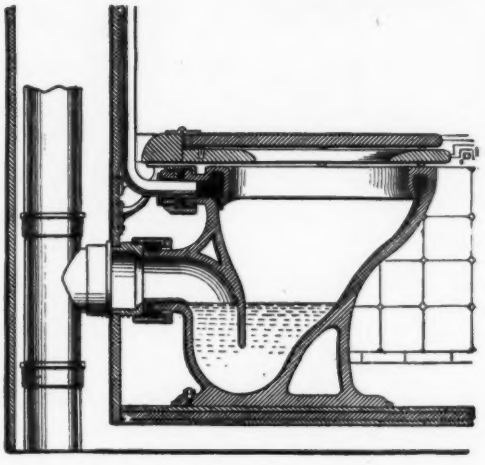

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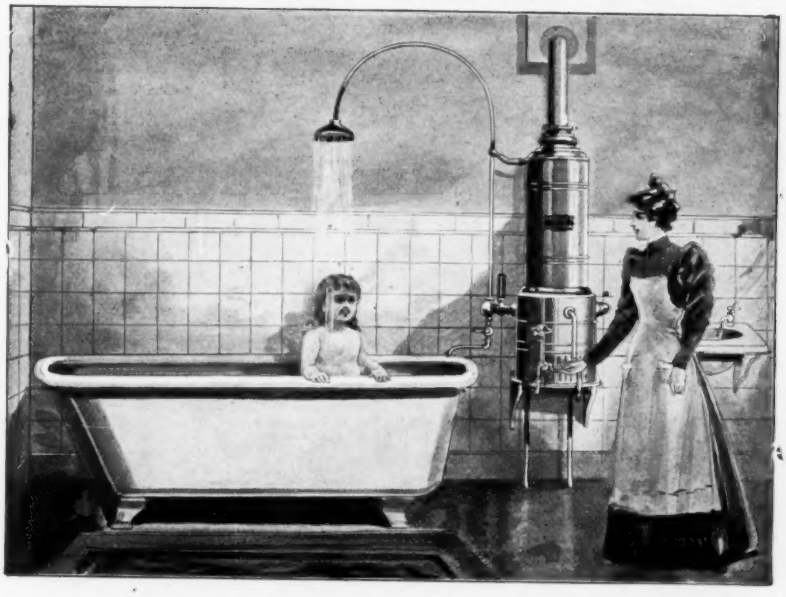

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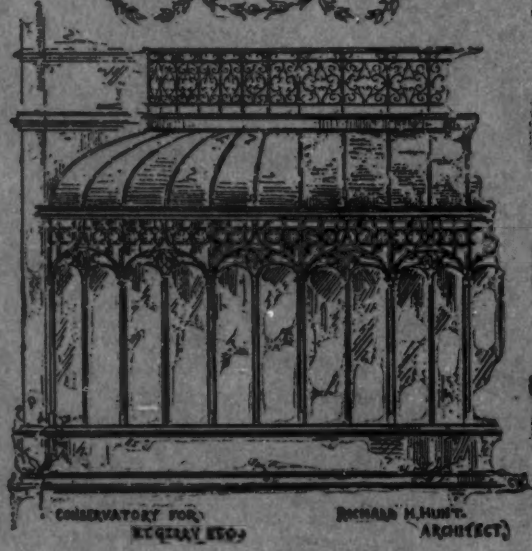

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